

USER GUIDE

X RANGE

WATERPROOF LITHIUM BATTERIES



iTECHWORLD
THE POWER EXPERT

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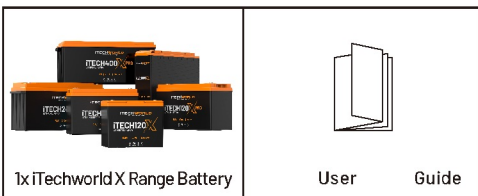
OVERVIEW

The iTechworld X Range represents the pinnacle of deep cycle lithium battery design. These batteries are equipped with a pre-installed Battery Management System that enables compatibility with a wide range of charging systems, making them well-suited for use in boats, caravans, motor-homes, RVs, and more. With an IP67 rating, they are also waterproof and dustproof, making them suitable for under-the-bonnet use.

KEY FEATURES:

- Australian design and development
- Bluetooth monitoring
- LiFePO4 battery
- Compact and lightweight
- IP67 Rated waterproof and dustproof
- Heavy duty ABS casing
- High discharge rate
- iTechworld BMS
- Over discharge protection (Safe Mode)
- Withstand under the bonnet temperatures
- Long cycle life
- A grade prismatic cells

Package Contents



GETTING STARTED

INSTALLATION

Your iTechworld X Range battery boasts an impressive IP67 rating, making it suitable for installation in a wide range of environments. Here's what you need to know:

The X Range battery can be installed in any orientation, except for upside down (with terminals facing down). For those looking to mount your X Range battery under the bonnet of a vehicle, we recommend using a heat shield to protect the battery from under-the-bonnet temperatures. With the robust IP67 rating and these installation guidelines, your iTechworld X Range battery is ready to deliver reliable power wherever you need it.

BLUETOOTH

Your iTechworld X Range lithium battery features Bluetooth capabilities. To access the Bluetooth user guide and download the iTechworld Connect app, please scan one of the QR codes below or by heading to your respective app store and searching for 'iTechworld Connect'.



USER GUIDE



IOS



ANDROID

PARALLEL CONNECTION



SERIES CONNECTION



PARALLEL CONNECTION

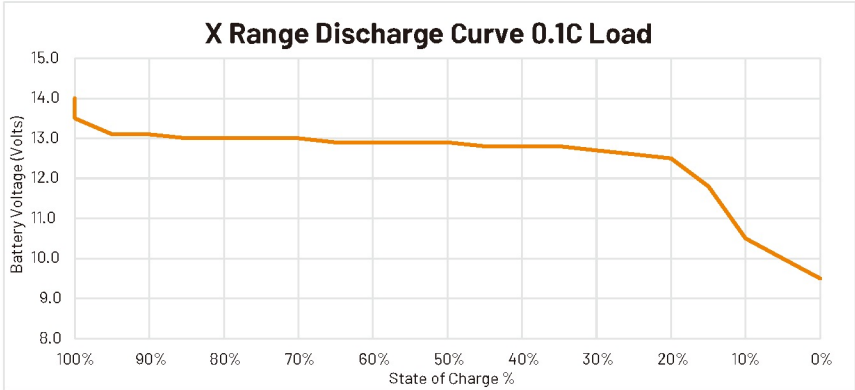


SERIES CONNECTION



DISCHARGE CURVE

Please note that a lithium battery's discharge curve will differ from your previous lead acid batteries. Please refer to the discharge curve graph to better understand how a lithium battery will perform.



State of Charge	Voltage under load 0.1C
100%	14.0V
100%	13.8V
100%	13.5V
95%	13.1V
90%	13.1V
85%	13.0V
80%	13.0V
75%	13.0V
70%	13.0V
65%	12.9V
60%	12.9V
55%	12.9V
50%	12.9V
45%	12.8V
40%	12.8V
35%	12.8V
30%	12.7V
25%	12.6V
20%	12.5V
15%	11.8V
10%	10.5V
0%	9.5V

STORAGE

When your iTechworld X Range battery is not in use, it is recommended to completely isolate the battery, charge it to 13.5V and check the voltage every 3 months, then charge the battery as needed. To ensure your battery is completely isolated, it is essential to disconnect it from any connected devices or systems.

You can also keep our maintenance chargers connected permanently, but if the battery is going to be completely out of use, keeping it connected is not necessary.

SAFE MODE

We are committed to delivering the safest batteries in the Australian market, which is why we've integrated multiple safety features, including over-current, over-voltage, high and low temperature, cross polarity and over-discharge protections. In the event that any of these safety features are activated, the iTechworld battery will drop into Safe Mode, rendering it temporarily unusable until it is brought out of Safe Mode.

In nearly all situations, except for when the battery's voltage falls below 10.5V, the battery is designed to automatically exit Safe Mode. For example, if the battery's internal temperature surpasses 80°C, it will enter Safe Mode. However, as soon as the internal temperature drops below 80°C, the battery will automatically recover and exit Safe Mode.

Please follow one of the below procedures to bring your iTechworld lithium battery out of safe mode.

If you have a solar panel in ideal weather, please follow the below steps in sequence to bring your battery out of Safe Mode.

- Disconnect all loads/inputs from the battery.
- **Connect your 'flat' battery to an unregulated solar panel.**
- Leave the battery connected to the panel for 5 minutes.
- Once the 5 minutes is up, disconnect the battery from the panel.

- Reconnect the battery to another charging source as soon as possible (DCDC charger, regulated solar panel, AC charger etc.)
- The charger should continue to charge the battery, bringing it out of Safe Mode.

If you have a portable jump starter, follow the below steps in sequence to bring your battery out of Safe Mode.

- Disconnect all loads/inputs from the battery.
- Connect the jump starter cables to the battery (positive to positive, negative to negative).
- Connect an ACDC charger to the battery. We recommend a three-stage 20A or higher charger.
- Activate the jump starter to supply power to the battery. The charger will now detect the battery and begin to charge.
- When the charger begins to charge the battery, disconnect the jump starter from the battery.
- The charger should continue to charge the battery, bringing it out of Safe Mode.

If you have a charged battery (e.g. a car battery) and jumper cables, follow the below steps in sequence to bring your battery out of Safe Mode.

- Disconnect all loads/inputs from the battery.
- Connect the iTechworld battery in parallel to a different battery.
- Connect an ACDC charger to the battery at the same time as the paralleled battery and allow it to begin charging. We recommend a three-stage 20A or higher charger.
- When the charger begins to charge the battery, disconnect the second battery.
- The charger should continue to charge the battery, bringing it out of Safe Mode.

OPTIMISING YOUR CHARGING

Embedded within every iTechworld battery lies a sophisticated Battery Management System (BMS) which sets our batteries apart from conventional lead-acid, calcium, or even other lithium batteries.

This BMS enables the battery to accept a broad range of charging profiles, including Lead Acid, Gel and AGM, making it versatile for various charging systems. However, it's important to note that the battery is not compatible with calcium charging profiles.

For optimal performance in systems with adjustable parameters, we recommend following the guidelines below. However, if your charger offers a dedicated lithium charging profile, it's advisable to use that profile for the best results.

Charge Stage	Charge Voltage
BULK	14.4V
ABS	14.4V
FLOAT	13.5V

RECOMMENDED CHARGING CURRENT

Model	Charge Current
400X PRO	1A-150A
240X PRO	1A-100A
160X PRO	1A-80A
120X PRO	1A-60A
120X	1A-50A
100SX	1A-50A

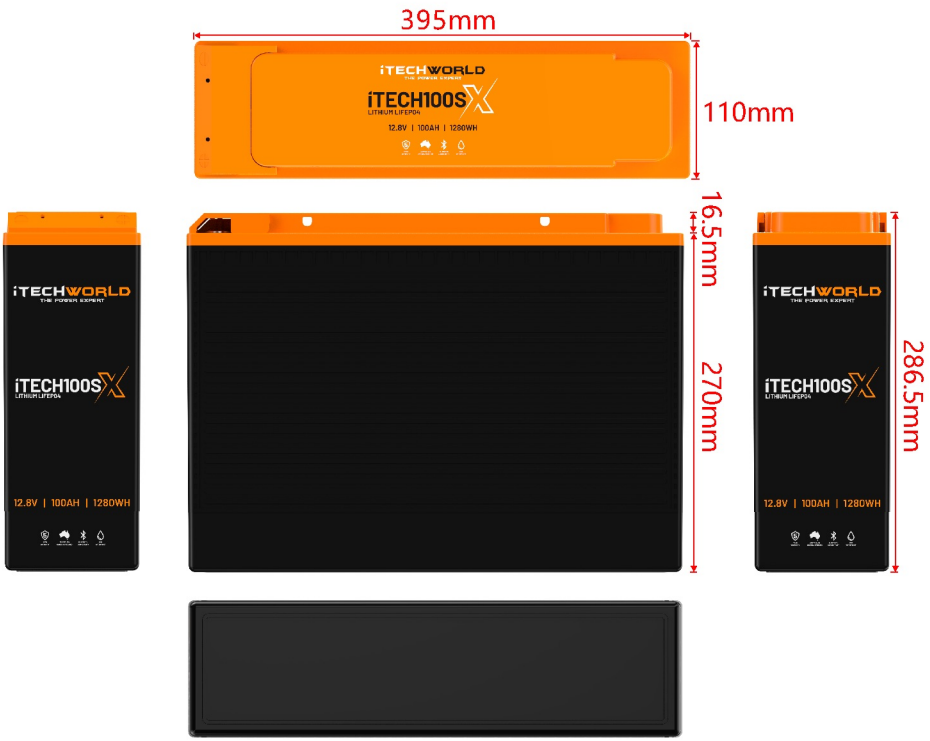
SPECIFICATIONS

General Specifications	
Battery Type	LiFePO4
Voltage	12V
Nominal Voltage	12.8V
Short Circuit Protection	Yes
Optimum Temperature Range	+5°C-60°C
BMS Operational Temperature	+5°C-80°C
Safety Protection Isolator	80°C
Recommended Charge Voltage	14.4V
BMS Charge Cut Off	15V
BMS Low Voltage Cut Off	10.5V
Series Connection	Up to 48V (4 x batteries)
Parallel Connection	Unlimited
Life Cycles @ 80% Depth of Discharge	5,000
Life Cycles @ 40% Depth of Discharge	10,000+
Terminal Type	M8
Case Material	ABS

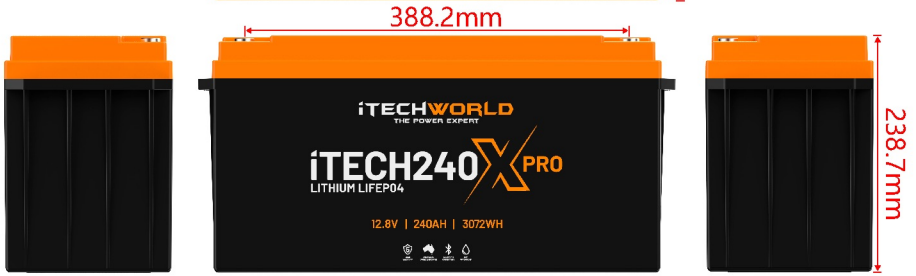
For more information on specifications please visit our website and select your iTechworld X Range battery.

Scan to visit our website









SAFETY PRECAUTIONS

For safe operation and optimal performance, iTechworld X Range batteries must be installed and operated correctly. Please carefully read, understand, and follow all instructions and guidelines in this user guide. Failure to follow these instructions may result in damage to the unit, property, death or serious injury.

Disclaimer: While iTechworld has taken every precaution to ensure the accuracy of the contents of this user guide, iTechworld assumes no responsibility for any errors or omissions.

Furthermore, all specifications and functionality may change at any time without notice.

It is best to view our website for the most up-to date information

WARNING:

Do not use any type of oil, organic solvent, alcohol, detergent, strong acids, strong alkalis, petroleum-based solvent or ammonia solution to clean the battery covers and plates. These materials may cause permanent damage to the battery covers and end plates and will void the warranty.

WARNING:

People with physical disabilities, visual, sensory or mental impairments (including children) should not use this device. Children should be supervised to ensure they do not play with the battery.

WARNING:

Avoid using the battery near fire.

WARNING:

Never smoke or allow a spark or flame in the vicinity of the battery. This may cause the battery to explode.

WARNING:

Do not drop the battery.

WARNING:

Do not use the battery and its accessories to connect equipment if there is a defect.

WARNING:

Do not disassemble or modify the battery; doing so may result in a risk of electrical shock, fire, death, or serious injury.

WARNING:

Do not use this battery in series or parallel with another battery of different chemistry or capacity.

WARNING:

Do not leave the battery in Safe Mode for longer than 7 days.

WARNING:

Don't ignore any warning signs that may appear throughout use of the battery (e.g. unusual heat or swelling).

LIMITATIONS OF USE:

Do not use in connection with life support systems or other medical equipment or devices.

CERTIFICATIONS

Our iTechworld X Range batteries are in compliance with the following standards and certifications:

UL1642
IEC62133
IEC62619
CE
ROHS



iTECHWORLD

THE POWER EXPERT

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When it comes to energy storage and creation at iTechworld, we take pride in being one of the biggest names in the industry. Based in Australia, we are a family-owned and operated business. With many more innovative products on the horizon we are committed to constantly raising the bar to provide bigger and better benefits to all our customers Australia-wide.

Whether you're an avid camper, 4WD enthusiast, freedom seeker or camper, we've got your power needs covered. Escape the grid without compromise, minimise your downtime and travel with comfort with our large range of leading products at great prices.

iTechworld. The Power Expert.

LOVE YOUR XRANGE BATTERY? LEAVE A REVIEW

