

USER GUIDE

X RANGE

WATERPROOF LITHIUM BATTERIES



ITECHWORLD
THE POWER EXPERT

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KEY FEATURES:

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.

- Australian Design and Development
- A Grade prismatic cells
- LiFePO4 Battery
- Compact and Lightweight
- IP67 Rated Waterproof and Dustproof
- Heavy Duty ABS Casing
- High Discharge Rate
- Battery Management System
- Over Discharge Protection (Safemode)
- Withstand Under the Bonnet Temperatures
- Long Cycle Life
- Australian Lithium



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	8.5V-9V
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

For safe operation and optimal performance, of your iTechworld X Range battery, it must be 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.

DO'S & DON'TS

DO

- Read the user guide
- Monitor battery state of charge
- Protect from physical damage
- Use a battery heat shield if you are installing the battery under the bonnet

DON'T

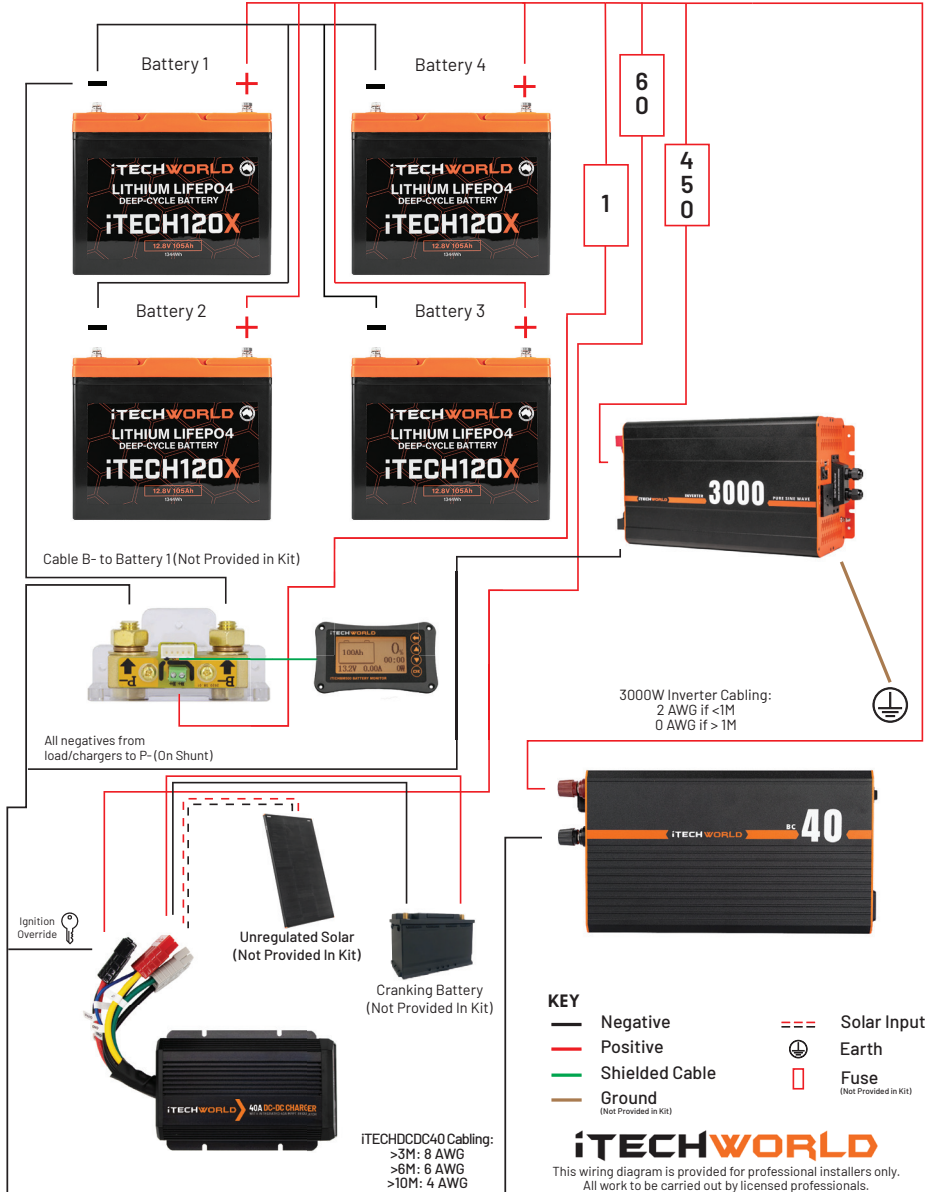
- Don't cross polarity the battery
- Don't open the casing
- Don't throw, squeeze, puncture, strike or disassemble the battery
- Don't use this battery in series or parallel with another battery of different chemistry or capacity
- Don't leave the battery in safemode for longer than 7 days
- Don't ignore warning signs (such as unusual heat or swelling)

WIRING DIAGRAM

COMPLETE LITHIUM CARAVAN KIT:

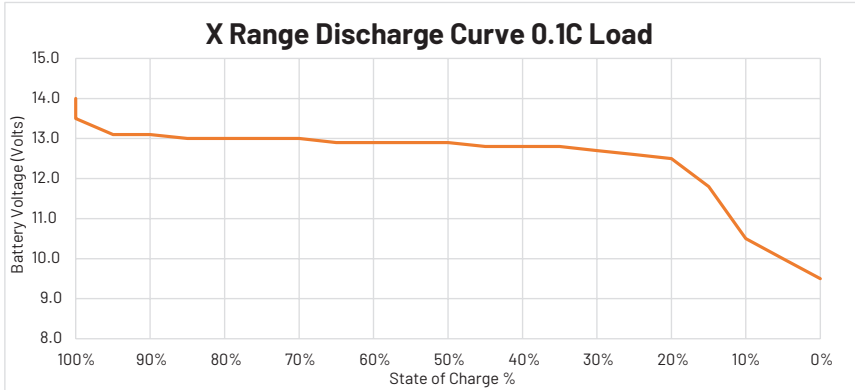
Cables used to link batteries and Cable B- to Battery 1 must be the same gauge (or better) as the cables used for connecting loads. E.g 3000W Inverter requires 0 AWG, then all cables must be atleast 0 AWG.

All positives from load chargers to Battery 4



DISCHARGE CURVE

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

OPTIMISING YOUR CHARGING

Embedded within every iTechworld X Range 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 charge profiles, including sealed, flooded, AGM, and GEL, making it versatile for various charging systems. However, it's important to note that the battery is not compatible with calcium-based charging profiles.

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

BULK: 14.4v

ABS: 14.4v

FLOAT: 13.5V

RECOMMENDED CHARGING CURRENT

iTECH400X PRO: 1-150A

iTECH240X PRO: 1-100A

iTECH120X PRO: 1-60A

iTECH120X: 1-50A

iTECH100SX: 1-50A

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 protection, over-voltage protection, high and low-temperature protection, cross polarity protection, and over-discharge protection.

In the event that any of these safety features are activated, the iTechworld lithium battery will drop into safe mode, rendering it temporarily unusable until it is brought out of safemode. In nearly all situations, except for when the battery's voltage falls below 10.5 volts, the battery is designed to automatically exit safe mode.

For example, if the battery's internal temperature surpasses 80 degrees, it will enter safe mode. However, as soon as the internal temperature drops below 80 degrees, 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 iTechworld lithium battery out of safe mode.

- Disconnect all loads/inputs from the iTechworld battery.
- Connect your 'flat' battery to an unregulated solar panel.
- Leave the battery connected to the panel for 5 minutes.
- Once that 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)

If you have a portable Jump Starter, follow the below steps in sequence to bring your iTechworld lithium battery out of safe mode.

- Disconnect all loads/inputs from the iTechworld battery.
- Connect the Jump Starter cables to the battery (Positive to Positive, Negative to Negative)
- Connect an ACDC charger to the iTechworld battery. We recommend a three stage 20 amp or higher charger.
- Activate the jump starter to supply power to the iTechworld battery. The charger will now detect the battery and begin to charge.
- When the charger begins to charge the iTechworld battery, disconnect the Jump Starter from the battery.
- The charger should continue to charge the iTechworld battery, bringing it out of safe mode.

If you have a charged battery (E.G. car battery) and jumper cables, follow the below steps in sequence to bring your iTechworld lithium battery out of safe mode.

- Disconnect all loads/inputs from the iTechworld battery.
- Connect your 'flat' battery to an unregulated solar panel.
- Disconnect all loads/inputs from the iTechworld battery.
- Connect the iTechworld battery in parallel to a different battery (number 2)
- Connect an ACDC charger to the iTechworld battery at the same time as the paralleled battery and allow it to begin charging. We recommend a three stage 20 amp or higher charger.

- When the charger begins to charge the iTechworld battery, disconnect battery number 2.
- The charger should continue to charge the iTechworld battery, bringing it out of safe mode.
- Allow the charger to fully charge the battery.

STORAGE

When your iTechworld X range battery is not in use, it is recommended to completely isolate the battery, charge it up to 13.5V and check the voltage every 3 months, then charging the battery as needed. To ensure your battery is completely isolated, it's 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.



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.

CERTIFICATIONS

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

UL1642
IEC62133
IEC62619
CE
ROHS



RoHS CE

WARRANTY

Your iTechworld X Range battery is covered by a warranty for a total duration of 5 years. This warranty is divided into two phases:

3 Years Full Replacement:

During the first 3 years from the date of purchase, if your battery experiences any manufacturing defects or failures, we will provide a full replacement at no cost to you. This period ensures that your battery is protected from any initial defects or unforeseen issues.

2 Years Pro-rata Warranty:

Following the initial 3-year full replacement period, you have an additional 2 years of warranty coverage through our pro-rata warranty. During this time, if your battery experiences any issues, the replacement cost will be pro-rated based on the remaining warranty period. This means that you will only be responsible for a portion of the replacement cost, and the exact amount will depend on the remaining duration of the warranty.

WARRANTY CONDITIONS

This warranty covers manufacturing defects and failures due to normal usage. Damage caused by misuse, abuse, or improper installation is not covered. The warranty is valid from the date of purchase and requires proof of purchase for any claims.

To make a warranty claim, please contact our customer service team for assistance (service@itechworld.com.au).

The warranty is applicable to the original purchaser and is not transferable. We are committed to providing you with a reliable and long-lasting battery. If you have any questions or need assistance regarding your warranty, please do not hesitate to reach out to us. We are committed to providing you with a reliable and long-lasting battery. If you have any questions or need assistance regarding your warranty, please do not hesitate to reach out to us.

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 end plates. These materials may cause permanent damage to the battery covers and end plates and will void the warranty.

DANGER:

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:

Please use the wires recommended in this user guide; otherwise, it may result in damage to the battery, a risk of electrical shock, fire, death, or serious injury.

WARNING:

Do not drop the battery.

WARNING:

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

WARNING:

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

WARNING:

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

LIMITATIONS OF USE:

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

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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**



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