



**iTECHWORLD**

# ITECH120X

**WATERPROOF 120 AH LITHIUM  
BATTERY**



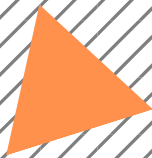

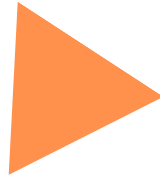
User Guide



# USER GUIDE

## KEY FEATURES

The iTECH120X is the pinnacle of deep cycle lithium battery design. The iTECH120X charges from almost every charging system making it perfect for use in boats, caravans, motor-homes, RVS, and more.

- Waterproof & Dustproof IP67.
  - Pre-installed Redback Operating System.
  - Pre-installed Battery Management System.
  - Pre-installed Cell balancing.
  - Heavy duty ABS casing
  - Unlimited parallel connection.
  - Can be connected in series 24-volt system.
  - High discharge current max 270A.
  - Heavy-duty removable M8 Bolt Battery terminals
  - Maintenance-free
  - Lithium LiFePO4
  - Lifting handle fitted to ensure a secure hold when moving
  - Over discharge protection (safe mode)
  - Australian design & development
  - Australian lithium
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# USER GUIDE

## SPECIFICATIONS

- Nominal Voltage: 12.8v
- C/20 Rating usable amps 10v: 105Ah
- Short Circuit Protection: Yes
- Optimum Temperature Range: +5 to +60°C
- BMS Operational Temperature Range: -40 to 80°C
- Safety Protection Isolator: 80°C
- Recommended Charge Current: 20 - 50A
- Maximum Charge Current: 100A
- Recommended Charge Voltage: 14.4v
- BMS Charge Cut Off Voltage: 15v
- BMS Low Voltage Cut Off: 8.5-9v
- Continuous Discharge: 150A (175A 5 mins)
- Peak Discharge: 270A 5 sec
- Life Cycles 80%: 2000 +
- Life Cycles 50%: 5000 +
- Life Cycles 30%: 8000 +
- UL certified 1642
- IP67 Rated Waterproof and dustproof
- CE Certified
- Rohs Certified
- UN38.3 Certified
- ISO 9001 Certified
- ISO 1400 Certified
- Dimensions (LxWxH): 330\*173\*215mm (225mm including terminals)
- Weight: 12kg
- Terminal Type: M8
- Case Material: ABS

# USER GUIDE

## ITECH120X SAFETY

Please follow and understand these instructions before using the iTECH120X, failure to do so can cause the battery to fail. It is strictly prohibited to disassemble the iTECH120X battery.

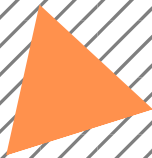

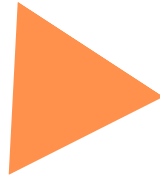
Inside the battery are electrolytes. These electrolytes can be a skin and eye irritant. Don't touch battery directly if you see any liquid on the battery. If there is electrolyte on your skin, please use soap and water to wash; if there is electrolyte on your eyes, please use lots of water to wash it and go to hospital immediately.





# USER GUIDE

## DO'S AND DON'TS

- Do not cross the polarity of the battery.
  - Never plug the battery directly into 240V mains power.
  - Do not open the casing.
  - Do not throw, squeeze, puncture, strike, contort, heat, burn, or disassemble battery.
  - Keep children and animals away from the battery.
  - Battery should be stored in a dry environment away from water.
  - Battery operates best if kept above 12.8V.
  - Unlimited parallel connection. When connecting in parallel all batteries voltage must be the same before connection.
  - When charging do not exceed 15V input. A battery charger with cut out of 14.7V and under is required.
  - Do not use this battery in series or parallel with a lead acid battery, calcium battery or other brand battery.
  - Exposure to sunlight can increase discharge rate of battery.
  - If battery shows any shape change, colour change or any liquid seeping from battery stop using immediately and contact iTechworld.
  - If the battery terminal screws are corroded, be careful not to bend the terminals when tightening or loosening.
  - Do no short-circuit the battery by directly connecting the positive and negative terminals together or with metal conductive objects.
  - Do not transport the battery together with metal objects that are conductive.
  - Do not leave the battery in safe mode for any longer than 7 days.
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# USER GUIDE

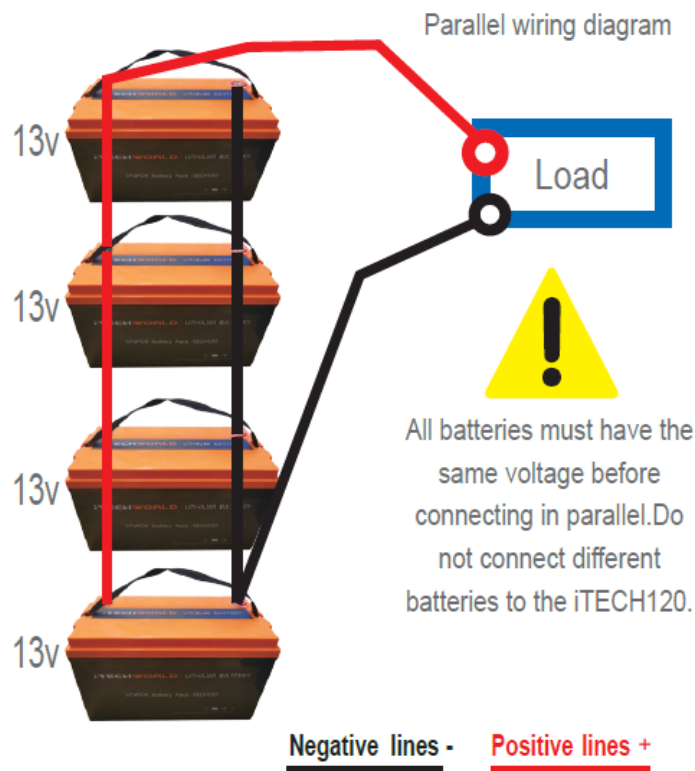
## WIRING DIAGRAM

Below is an example of how a bank of iTECH120X batteries should be connected together in parallel. Please note all batteries must be of the same voltage before creating a bank. When drawing a load from the bank it should be split as follows:

**Positive** to battery number 1

**Negative** to battery number 4

You should also charge your iTECH120X battery bank in the same manner.



# USER GUIDE

## OPTIMISING YOUR CHARGING

The iTECH120X has sophisticated Battery Management System, Cell Balancing and the Redback Operating System pre-installed. This hardware allows the iTECH120X to be charged from almost all non lithium charging profiles. For charging systems in which the parameters can be changed we suggest following our guidelines below to optimise the system.

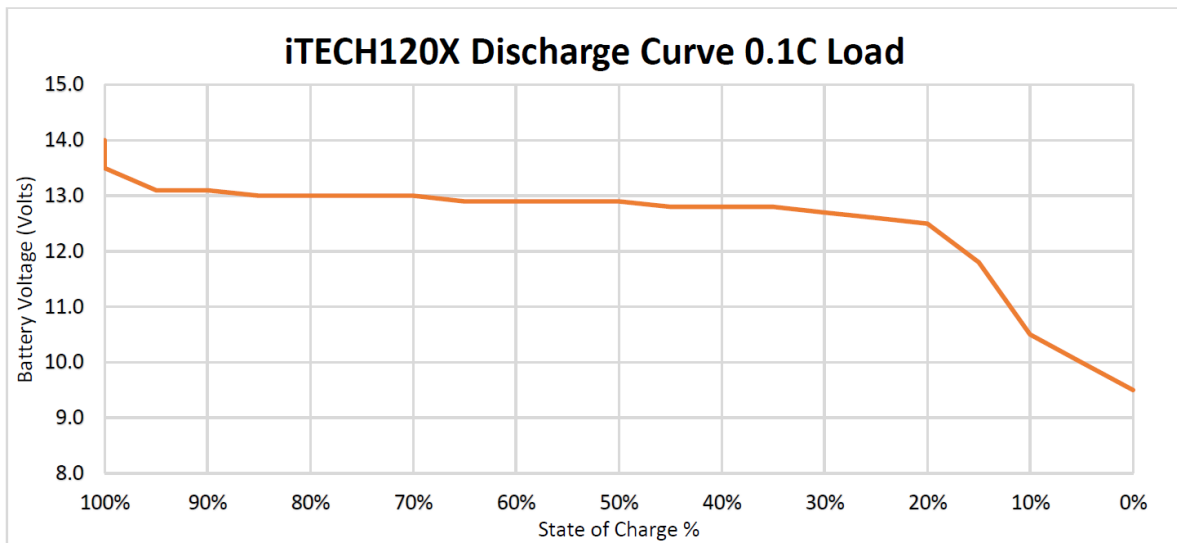
If your charger has a dedicated lithium charge profile use that profile.

Parameters	Setting
Bulk Voltage/Absorption	14.40V
Float	13.50V
Charge current	Do not exceed 100Amps per battery connected in parallel.
Equalization Modes	Disabled, if they cannot be disabled, set the voltage to 14.40V
Temperature Compensation	Disabled

# USER GUIDE

## DISCHARGE CURVE

Please note that the iTECH120X's discharge curve will be different from your previous lead acid batteries. Please study the discharge curve provided below to give you a better understanding of how the iTECH120X 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

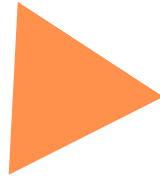

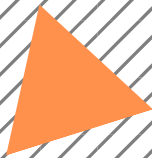




# USER GUIDE

## SAFE MODE

The iTECH120X has numerous safety features pre-installed inside the battery to make it the safest lithium battery available in Australia. Once such feature is "safe mode". If you draw too much power from your battery (over discharge) your iTECH120X battery will enter safe mode to protect itself. The iTECH120X will enter safe mode at a voltage of 9v or less, the terminals have been shorted or too much current has been drawn. Once the battery is in safe mode it will appear to be open circuit. No voltage( or a low voltage) will be detected on the battery terminals and there will be no current output. There are numerous ways to bring your iTECH120X battery out of safe mode, such as using jumper cables, our iTECH2000A jump starter, iTechworld 30 Amp battery charger and the iTechworld Lithium bypass cable, each method will be explained in the following pages.



# USER GUIDE

## JUMPER CABLE RESET METHOD

1. Connect the red coloured jumper lead to the (+) positive terminal of the battery which has gone into safe mode and the other end of the red jumper lead to the (+) positive terminal of another 12V battery (this can be an AGM, Gel or lead acid as it is only a temporary connection)



# USER GUIDE

## JUMPER CABLE RESET METHOD

2. Connect the black jumper lead to the (-) negative terminal of the charged battery and the other end of the black jumper lead to the (-) negative terminal of the flat battery, take care as some sparking may occur. Leave the batteries connected for maximum of 60 seconds. Then disconnect the negative clamps from both batteries, followed by the positive clamps, do not allow the positive and negative clamps to touch and cause a short circuit. Once the battery has reached approximately 10.8volts, the BMS will reset and allow current to flow and be detected by your charger.



# USER GUIDE

## ITECH2000A JUMPSTARTER

### RESET METHOD

The iTECH120X can also be reset using our iTECH2000A jump starter by following these steps below.

You can purchase our iTECH2000A jump starter here: <https://bit.ly/itech2000a>

1. Connect the jump starter clamps into the iTECH2000A jump starter, then locate the jump start button on the clamps and press and hold the button until the countdown timer is initiated.



# USER GUIDE

## ITECH2000A JUMPSTARTER

### RESET METHOD

2. Within the 60 second countdown, connect the positive clamp to the positive terminal of the iTECH120X then followed by the negative clamp to the negative terminal, take care as some sparking may occur. Leave the jump starter connected until the countdown timer ends. Repeat these steps if the battery was not successfully reset



# USER GUIDE

## ITECHWORLD 30A BATTERY CHARGER

The iTECH120X can also be reset with our 30Amp battery charger by following the steps below. You can purchase our 30Amp battery charger here: <https://bit.ly/itech30abc>

1. Connect the charger positive battery clamp to the iTECH120X positive terminal and the negative battery clamp to the negative terminal, then turn on the battery charger. The battery charger may not start charging when turned on, this would be indicated on the charger by only a Green led illuminating and the ammeter on 0 proceed to step 2 if this is the case.



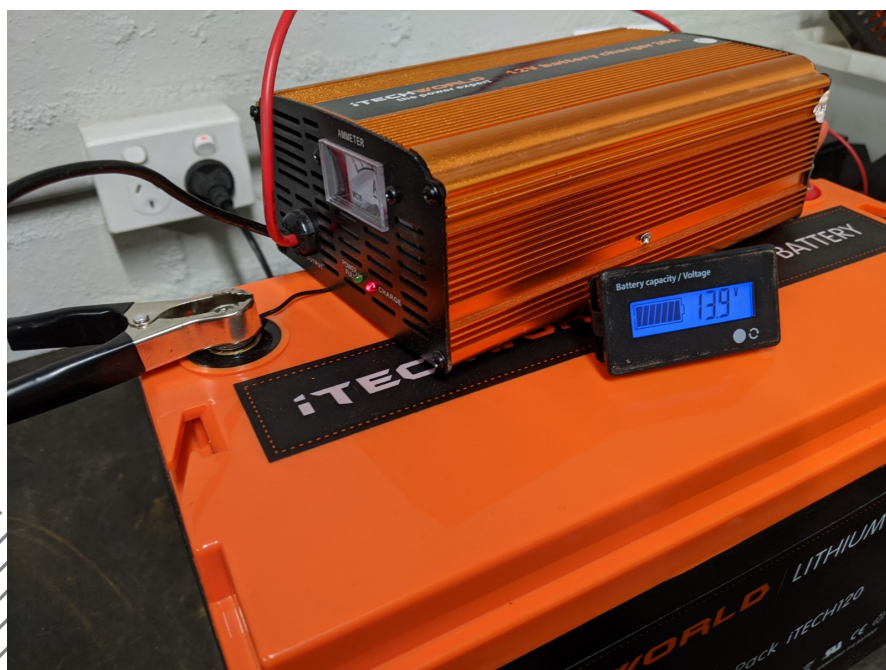
# USER GUIDE

## ITECHWORLD 30A BATTERY CHARGER

2. With the charger still powered on, remove the negative battery clamp from the iTECH120X battery momentarily then reconnect it take care as some sparking may occur. The charger will now turn on and start charging.



Temporarily removing the negative charger clamp



Reconnected charger clamp and charger is now outputting power

# USER GUIDE

## ITECHWORLD LITHIUM BATTERY BYPASS SWITCH

With the bypass switch, this allows the reset mechanism to be permanently wired to your iTECH120X and allows for remote BMS resetting,

both batteries must be on the same negative ground:

You can purchase the lithium battery bypass switch here:  
<https://bit.ly/itechbypass>

1. Install the bypass switch connecting only the positive terminals of the iTECH120X battery and your main starting battery, or any other battery. Both batteries must share the same negative ground, the arrow indicated on the switch must point to the iTECH120X.
2. Once the cable is installed you can simply press and hold the button for a few seconds to reset the BMS.



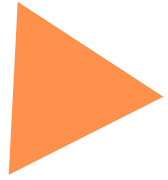

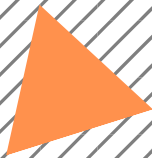





# USER GUIDE

## STORING YOUR ITECH120X

Long-time storage in a hot or wet environment will damage the battery. The battery should be stored in dry and ventilated environment. The ideal storage temperature is below 25°C if stored this way, it will extend the battery life. If the storage temperature surpasses 40°C for a long period of time (more than 30 days), battery life may be shortened; if the storage temperature surpasses 55°C, the battery can be damaged. When the battery is being stored for more than 50 days the preferred charge storage capacity should be between 70% and 80% this should be a reading of 13.2V. Checking the voltage and charging when required should be done every 30 days.





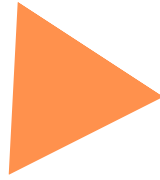

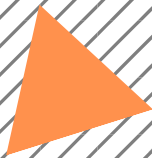
# USER GUIDE

## TRANSPORTING THE ITECH120X

The iTECH120X battery should always be carefully handled. Don't throw the battery and avoid squeezing it i.e do not pack heavy objects on top of the battery otherwise your battery casing will warp.

The battery is robust and designed to handle off-road bumps.

Ensure the battery is in a secure spot where it cannot be punctured. Do not store battery with flammable, explosive goods of sharp metals. Upon delivery of battery from iTechworld please inspect for openings in the casing or other damage that could have been caused in transit. Contact iTechworld immediately if the battery does not seem right after taking delivery.



# USER GUIDE

## WARRANTY

iTechworld warrants its iTECH120X Lithium battery to be free of defects in material and workmanship for the following Applicable Warranty Period:

- *3 years for automotive applications in cycling and non-cycling applications*

### **Three Year Limited Warranty**

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The limited warranty program is the only one that applies to this unit, and it sets forth all the responsibilities of iTechworld. There is no other warranty, other than those described herein. Any implied warranty of merchantability of fitness for a particular purpose on this unit is limited in duration to the duration of this warranty.

iTechworld does not warrant the battery for use in any residential system sold with the intent or purpose of a "Tariff Adjustment Program" of any type.

The warranty does not cover a battery reaching its normal end of life which may occur prior to the warranty period stated above. Depending on the application a battery can reach its normal end of life before the end of the warranty period.



# USER GUIDE

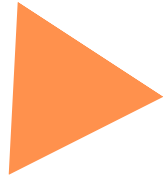

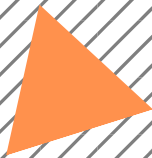
## WARRANTY

A battery can deliver only a fixed number of usable cycles / amp-hours over its lifetime and is considered to have reached its normal end of life if the application uses up all of these cycles / amp-hours, regardless of the time the battery has been in service. Therefore, iTechworld reserves the right to deny a warranty claim if it determines the battery to be at its normal end of life, even if the claim is lodged within the applicable warranty period.

The Applicable Warranty Period begins from the date of purchase with original receipt.

Batteries determined to meet the conditions of this warranty will be replaced free of charge if, at the sole discretion of iTechworld, adjustment is necessary due to defect in material or workmanship. Batteries for warranty replacement consideration are to be returned to iTechworld, PO BOX 223 BURSWOOD WA 6100.

Batteries replaced under the warranty provisions will be shipped with a replacement warranty sticker and carry only the remainder of the original Applicable Warranty Period.





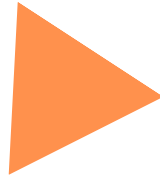

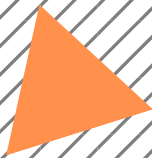
# USER GUIDE

## WARRANTY

The iTECH120X battery is not designed or warranted in the following areas:

- The Battery is NOT to be used in any Aviation aircraft application.
- The Battery is NOT to be used in any lifesaving applications.
- The Battery is NOT to be exported.
- Any residential system sold with the intent or purpose of a “Tariff Adjustment Program” of any type.

**PLEASE NOTE:**The battery has a self-discharge rate(low). It is the responsibility of the end user to maintain the battery in a charged state. The battery should not be left for more than 30 days without checking its charge state. iTechworld recommend that a battery left in a “storage state” should be checked and charged every 30 days to maintain maximum life expectancy of the battery. Failure to follow these requirements will see an early failure of the battery which is not covered under warranty.

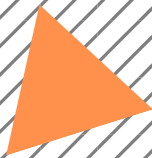

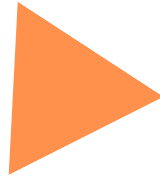




# USER GUIDE

## WARRANTY

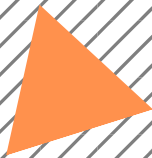

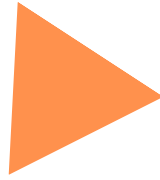
**General Provisions:** iTechworld has no obligation under the limited warranty herein in the event the battery is damaged or destroyed as a result of one or more of the following:

- Wilful abuse, misuse, physical damage, neglect or if the decorative cover has been removed.
  - Natural forces such as wind, lightning, hail; damage due to fire, collision, explosion, vandalism, theft, penetration or opening of the battery case in any manner
  - The battery **MUST** be installed in an upright position. Installing it upside down or laid on its side will void warranty.
  - Overcharging, undercharging, charging or installing in reverse polarity, improper maintenance, allowing the battery to be deeply discharged via a parasitic load or mishandling of the battery such as but not limited to using the terminals for lifting or carrying the battery.
  - Charging sources that do not have charge voltage between 13.5V and 14.5V (no lower than 13.0V and no higher than 14.7V) will cause early failure of the battery. Use of such chargers with the battery will also void the battery's warranty. For applications where an alternator is present, the alternator must deliver between 13.5V and 14.2V when measured at the Battery's terminals. Alternators that do not have a regulated charge between 13.5V and 14.2V (no lower than 13.0V and no higher than 14.7V) will cause early failure of the battery. Use of such alternators with the battery will also void the batteries warranty.
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# USER GUIDE

## WARRANTY

- Failure to install the battery correctly will void the warranty.
  - Repair or attempted repair of the battery by anyone other than an authorized iTechworld representative shall void this warranty.
  - Normal or accelerated deterioration in the electrical qualities due to operating or application conditions.
  - If the battery is used for an application that requires higher cranking power or a greater reserve rating than the battery is designed to deliver, or the battery capacity is less than the battery capacity specified by the manufacturer, or the battery is otherwise used in applications for which it was not designed.
  - Prolonged storage of the battery with either no charge or a parasitic consumption load applied must be offset with a maintenance-float charger of no more than 13.5V or periodic charging or disconnecting the battery to prevent irreversible damage to the battery.
  - A battery with an open circuit voltage (OCV) of equal to or less than 10.0V will be deemed as over discharged and void warranty due to misuse and/or neglect.
  - **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.
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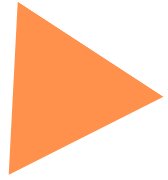

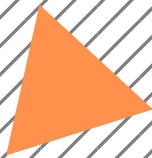
# USER GUIDE

## WARRANTY

### **Return and/or Repair Policy**

If you are experiencing any problems with your unit, please contact our customer service department at [sales@itechworld.com.au](mailto:sales@itechworld.com.au) or Phone 1300 483 249 before returning product. After speaking to a customer service representative, if products are deemed non-working or malfunctioning, the product may be returned to the store within 30 days of original purchase. Any defective unit that is returned to iTechworld within 30 days of the date of purchase will be replaced free of charge.

If such a unit is returned more than 30 days but less than three years from the purchase date, iTechworld will repair the unit or replace it, free of charge. If the unit is repaired, new or reconditioned replacement parts may be used, at iTechworld's option. A unit may be replaced with a new or reconditioned unit of the same or comparable design. The repaired or replaced unit will then be warranted under these terms for the remainder of the warranty period. The customer is responsible for the shipping charges on all returned items back to iTechworld.







# USER GUIDE

## WARRANTY

### **Limitations**

This warranty does not cover damage or defects resulting from normal wear and tear (including chips, scratches, abrasions, discolouration or fading due to usage or exposure to sunlight and water), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, acts of god, fire, flood and force majeure.

