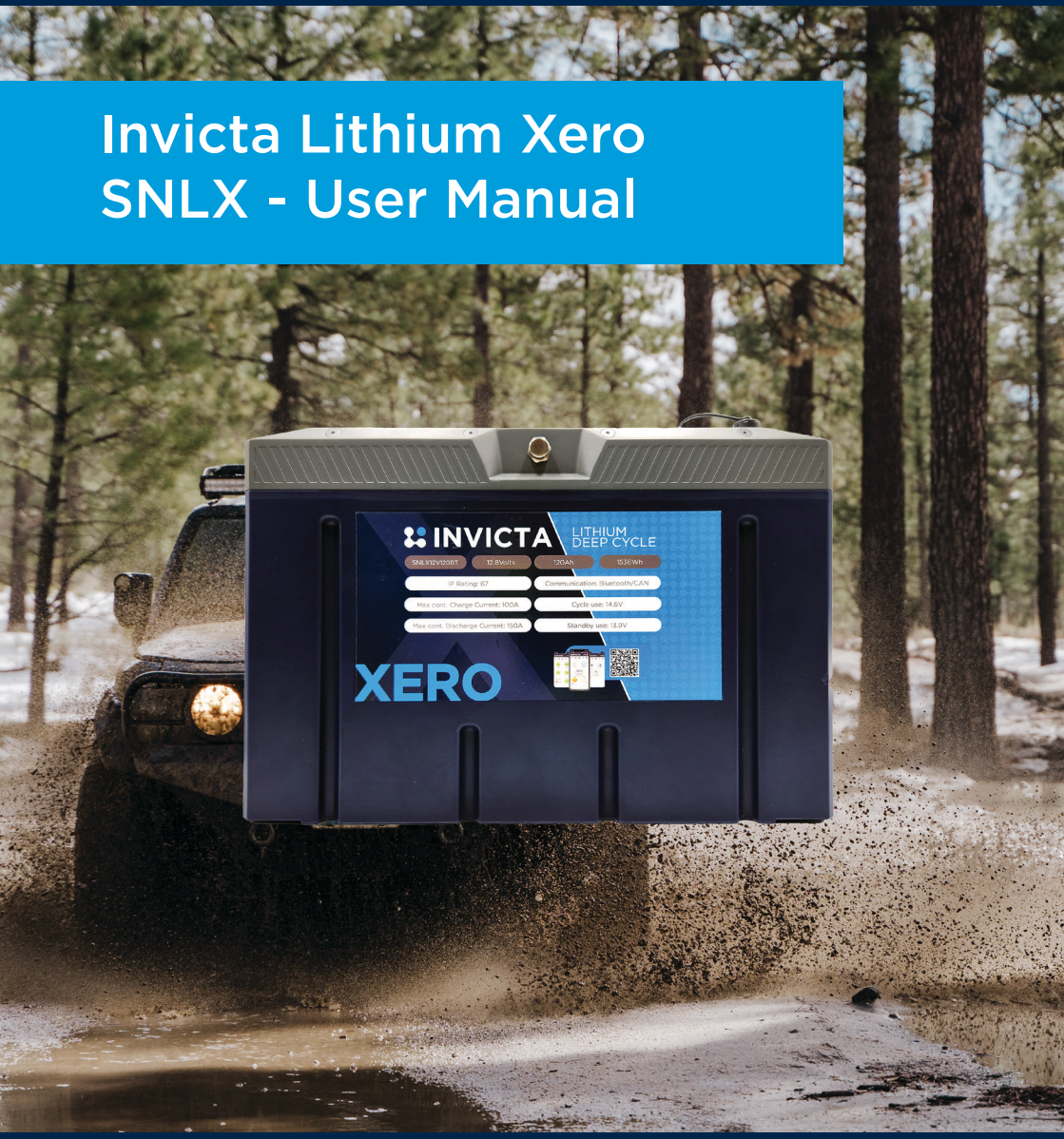
INVICTA LITHIUM BATTERIES

Invicta Lithium Xero SNLX - User Manual



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Contents

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Welcome to your new Invicta LIthium Xero LiFePO4 Battery.

Please read the instructions and warning on this card carefully to ensure you get the most out of your battery.

Warnings For Operation

- Read this manual before use
- Keep away from direct heat, high voltage and direct sunlight.
- Never short circuit the positive and negative terminals.
- Never ship or store battery along with metal.
- Never disassemble, alter or drill the battery.
- Avoid direct impact to the battery.
- Never throw battery
- Never exceed the IP67 dust and water resistant rating
- Never place the battery in fire
- Ensure charge rate is within the parameters of the battery
- Do not exceed the discharge parameters of the battery
- Do not reverse the polarity of the battery
- Do not place the battery upside down
- Before connecting the battery pack to your device, check the voltage and ensure that they are within the limits of your device specifications. Failure to comply with these specifications will void your warranty.
- Keep exhaust valve and heat-sink clear

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Tips For Operation

- To activate a Parallel or Series connection using the battery-to-battery CAN cables - Ensure that the reset button is press and held for 20seconds. Refer to Parallel/Series section.
- To activate communication device - Ensure that the reset button is press and held for 20seconds. Refer to Communication section
- Download Invicta Legion App for Battery Monitoring, Wired Parallel/Series setup, and Communication Device setup. Refer to Invicta Legion Application Section
- If the battery goes below the over-discharge protection voltage or the over-discharge protection is activated, charge battery within 15 days.
- Battery must be charged within 6 months of receipt
- Battery should be maintenance charged every 3 months to extend life
- Ideal storage temperature 20°C – 35°C
- Do not leave battery in low state of charge for long periods of time.
- Isolate battery from system if not in use for more than 7 days
- Battery will enter hibination if not used for more then 15 days
- Keep battery away from high temperatures of 60°C or more
- If battery shows signs of deformation, heat or emits smell, immediately discontinue use.
- The SNLX battery has a passive balance feature which results in cells and battteries discharging and charging at different rate

Download The Invicta Legion Application

Download on the App Store

GET IT ON Google Play

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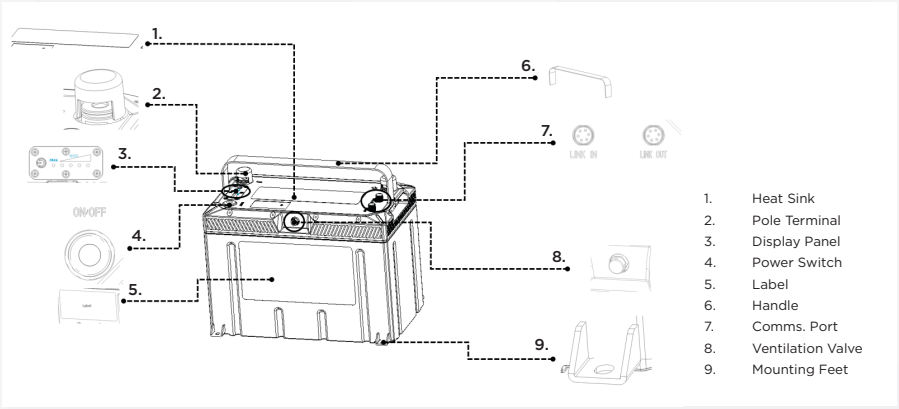
Battery Appearance

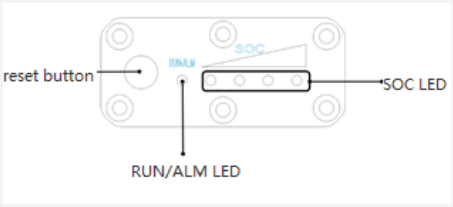


1. Heat Sink
2. Pole Terminal
3. Display Panel
4. Power Switch
5. Label
6. Handle
7. Comms. Port
8. Ventilation Valve
9. Mounting Feet

1. **Heat sink:** The heat sink is a cooling component that benefits the battery life. At the same time, the heat sink is a hot decoration that cannot be touched by hand during battery use to avoid burns.

2. **Pole terminal:** Each battery has a positive and negative terminal. During use, be sure to identify and avoid reversing the positive and negative poles. After connecting the power line to the pole terminal, cover it with a protective cover to prevent short circuits.

3. **Display Panel:** The battery display panel has one fault/running light, 4 SOC indicator lights, and one button: the usage method is as follows: RUN/ALM: One red light, one yellow light, displayed in yellow when the battery is normal; when there is a battery failure alarm or protection, it will display in red.



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Indicator light 🟢	Always on during charging or discharging	Flashing during standby 1
Indicator light 🔴	Always on when there is a malfunction	

Status	Charge				Discharge			
SOC	L1 🟢	L2 🟢	L3 🟢	L4 🟢	L1 🟢	L2 🟢	L3 🟢	L4 🟢
0-25%	off	off	off	Blink2	off	off	off	On
25-50%	off	off	Blink2	On	off	off	On	On
50-75%	off	Blink2	On	On	off	On	On	On
75%-100%	Blink2	On	On	On	On	On	On	On

Blinking mode	Lighting time	Off time
Blink 1	0.25s	3.75s
Blink 2	0.5s	0.5s

4. **Battery Power Switch:** The battery power switch is used to turn the battery on or off. When the battery is in the ON state, it indicates that the battery BMS is in a normal state and can

5. **Label:** During use, matching the corresponding charger and loading according to the label parameters is essential to avoid battery failure.

6. **Handle:** The handle is used to bear the weight of the battery. When lifting the battery, observe the stability of the handle to avoid the battery falling off.

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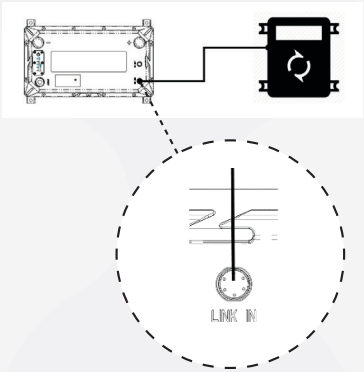

7. **Communication Port:** There are two communication ports: one is Link in, and the other is Link out. Pay attention during use.

8. **Pressure relief valve:** The waterproof grade is IP67 because the battery is heating during charging and discharging, which leads to thermal expansion. Adding a pressure relief valve can prevent the air pressure inside the battery box from rising, resulting in dangerous accidents. Make sure that there is no other object around the pressure relief valve.

9. **Installation bracket:** Install the bracket to facilitate battery installation in vehicles. It is recommended to use M6 stainless steel screws to secure the battery. Only available on SNLX12V120BT batteries

Box Contents

SN	Item	QTY	SPEC
1	Battery-to-battery CAN Cable	1	500mm, M1 with 2 circular coomunicaions interfaces at each end
2	Battery	1	SNLX
3	Terminal Screw	2	M8
4	Mounting Feet*	4	Feet and screws (SNLX12V120BT only)

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Battery Installation

- Remove the battery from the box ensuring it is undamaged and the correct model
- Record the serial number and register you battery
  https://www.invictalithium.com.au/warranty-registration-2/
- Check you have the right battery for your application
- Check place of installation, ensuring it is clean and ready
- Ensure you have the right tools, equipment and PPE

- Ensure battery is off before connecting any cables, leads or accessories
- Ensure the application and any accessories are off
- Carefully lift and lower the battery using the handles supplied
- Do not over tighten any brackets, nuts, bolts or terminals.
- Hand tighten plus half turn is sufficient
- Connect cables, leads, and accessories
- Connect negative cables to negative terminal and positive cables to positive terminal.

- If connecting in a parallel, series, or communication device (ie Victron Cerbo GX) please refer to the section in this manual on how to do this.
- If connecting in parallel or series - never connect in master-slave configuration. Doing so may void your warranty

- Turn on batteries only once all cables, leads and accesories are connected
- Wait upto 15 seconds for batteries to complete self check and turn on
- turn on accessories
- Open the Invicta Legion Application - ensure no protection are active
- If you wish to change to name of your battery the password is 1234. Please record the serial number before doing this
- If you are not using the battery we recommend turning the battery off

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Charging Your Battery

- Always use a battery charger with a lithium profile that does not exceed the charging specifications of the battery
- Charger must not contain Sulphation/Equalisation setting. If so then this needs to be turned off.
- The charging table should be followed when charging

Model	Recommended Charge Voltage	Recommended float voltage	Cut-off Voltage	Max. Charge Current	Recommended Charge Current	Operation Temperature
48V	57.6V	54.4V	44.8V	1C	0.3C	Charge: 0 ~45℃ Discharge: -20~65℃
36V	43.2V	40.8V	33.6V			
24V	28.8V	27.2V	22.4V			
12V	14.4V	13.6V	11.2V			

- Always use a battery charger with a lithium profile that does not exceed the charging specifications of the battery
- Charger must not contain Sulphation/Equalisation setting. If so then this needs to be turned off.
- The charging table should be followed when charging
- Do not have batteries sit on float charge for an extended period of time.
- Please ensure your charger is matched to the current rating of your battery and take note of the recommended charge current in the batteries specification sheet – Normally half the batteries rated capacity. For example SNL12V100S – Recommended charge current = 50A.
- We will only warrant the battery if a Lithium (LiFePO4) profile charger has been used
- For specifications for your battery please visit invictalithium.com.au
- If using solar it should utilise a MPPT regulator that matches the battery specifications
- If using a DC-DC charger ensure it matches the battery specifications

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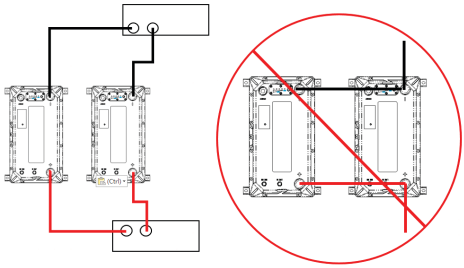
Setting Up A Parallel or Series System

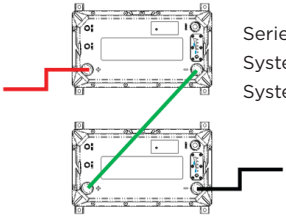
- Before connecting batteries in series or parallel, pay attention to: a). The batteries must be of the same model. When there are different models, different capacities, and different voltage platforms, series and parallel connections are not allowed; b). Ensure that all parallel wires are of identical length; c). 0.5C charging is recommended, that is, charging current = half the rated capacity of the battery * d). Before connecting the batteries in series and parallel, the batteries should be fully charged and balanced. You can check whether the batteries are balanced by using the Invicta Legion Application

Important Information

1. Before connecting in series or parallel, ensure the batteries are off.
2. Once the batteries are off, connect the battery leads in a series and/or parallel configuration as shown below. Never master-slave a system and always adhere to the max configuration
3. Connect your accessories and check all connections are secure.



Parallel example: 2 x 12.8V100Ah
System voltage: 12.8V
System capacity:100Ah + 100Ah = 200Ah



Series example: 2 x 12V.8100Ah
System voltage: 12.8*2=25.6V
System capacity: 100Ah

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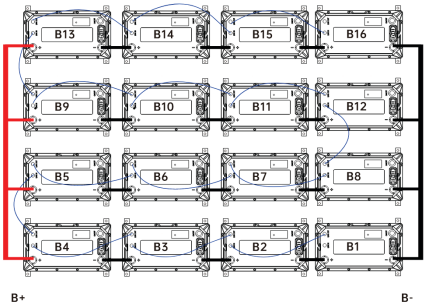
Simultaneous Series and Parallel: To series batteries allow simultaneous use of batteries in series and parallel, with a maximum support of 4 series and 4 parallel applications. The connection method is: first in series, then in parallel, which means that the batteries are connected in series to form a high voltage and then in parallel to form a high capacity.



Series number	Allowed parallel number
1	16
2	4
3	4
4	4

Series & Parallel Eg. 16 x 12.8V100Ah
4 in series & 4 in parallel
System voltage: 12.8V x 4 = 51.2V
System capacity: 100Ah x 4 = 400Ah
System = 51.2V 400Ah

4. The batteries can communicate via a 'Wired' connection or Bluetooth connection
5. the Wired connection utilises the battery-to-battery CAN cables and is the preferred method of communication. Below is the Max configuration allowed depending on which method you use.
6. Extension cables are available for purchase
7. To set up a parallel or series connection you will need to download the Invicta legion Application
8. Follow the steps in the following pages refering to the connection method you have chosen

Max Bluetooth Configuration
S = Series / P = Parallel

12V System
1S + 16P
2S 1P
3S 1P
4S 1P

Max Wired Configuration
S = Series / P = Parallel

12V System
1S + 16P
2S 4P
3S 4P
4S 4P

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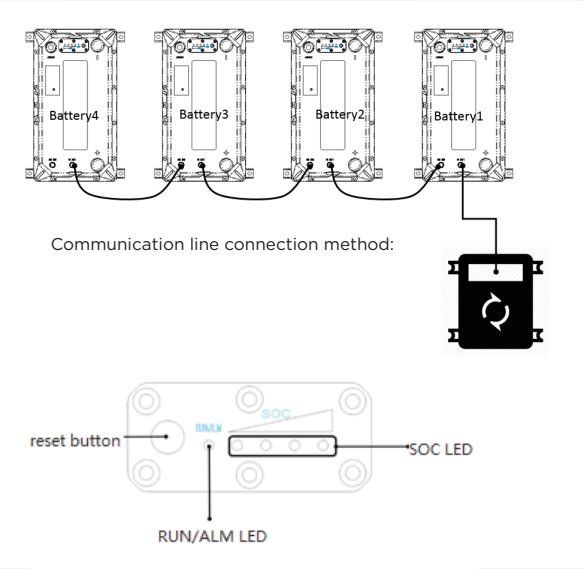
Wired System Connection

Setup

Use this system to connect and monitor multiple batteries in series and/or parallel via a wired/CAN bus connection. This is the preferred method when possible.

To set up a Wired system please follow the steps below.

1. Connect battery-to-battery Link cables. Only use approved Invicta Link Cables for battery-to-battery connection.
2. Battery 1 - Link Out > Battery 2 - Link In
3. Battery 2 - Link Out > Battery 3 - Link In etc.
4. If using a communication device this will connect to the Link-In on Battery 1
5. **Important!!** Turn the batteries on in sequence and wait 10 seconds for power to be supplied. Press and hold reset button for 20sec. on Battery 1. Wait for lights to run and stop. This will take approx 2 min. If lights flash, reattempt.



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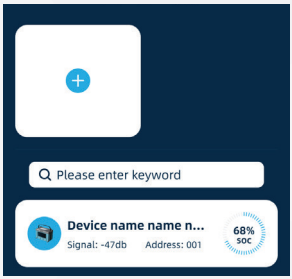

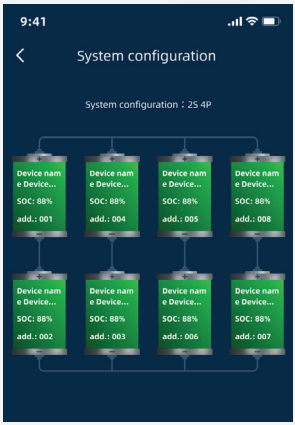

6. Open Invicta Legion Application and press Wired System connection
7. Press the + sign and set the system name, voltage platform, series or parallel connection and quantity of batteries in the system.

Max Configuration - S = Series / P = Parallel

12V System	24V System	36V System	48V System
1S + 16P	1S 4P	1S 4P	1S 4P
2S 4P			
3S 4P			
4S 4P			

8. Press Select 'Master Battery'
9. Select Master Batter (Battery 1)
10. Ensure the corresponding battery name is connected to the corresponding position in the system
11. Ensure battery one (Master) is in the first position, battery two is in the second position etc.
12. For example - in a four battery system, do not place battery three in the first position.
13. Press save.
14. To change or remove the system, press Re-configure or Release.

15. Attention third party installers - After testing on your phone, it is important to release the network and set it up on the customers phone during hand over.

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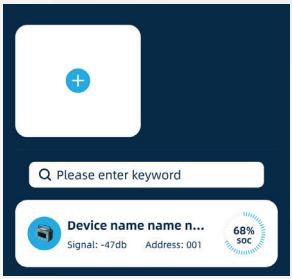
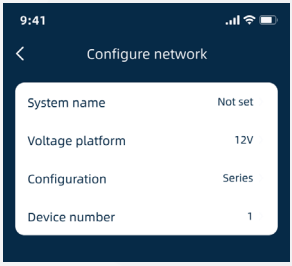
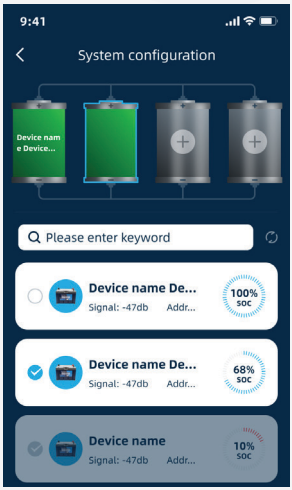
BT System Connection







Setup

Use this system to connect and monitor multiple batteries in series or parallel via a battery-to-battery Bluetooth connection. The user can set up multiple systems and monitor individual batteries in the system. Users can also connect and monitor multiple batteries via a wired connection, and is the preferred method if possible. See Wired System Connection for this method

To set up a BT system please follow the steps below.

1. Open Invicta Legion Application and click BT System connection
2. Click the + sign and set the system name, voltage platform, series or parallel connection and quantity of batteries in the system.
3. Select the corresponding battery name to the corresponding position in the system
4. Ensure battery one is in the first position, battery two is in the second position etc.
5. For example - in a four battery system, do not place battery three in the first position.
6. Press save. To change or remove the system, press Re-configure or Release.

7. Attention third party installers - After testing on your phone, it is important to release the network and set it up on the customers phone during hand over.

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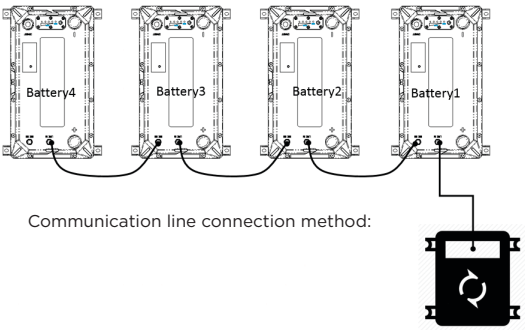
Communication Device Connection

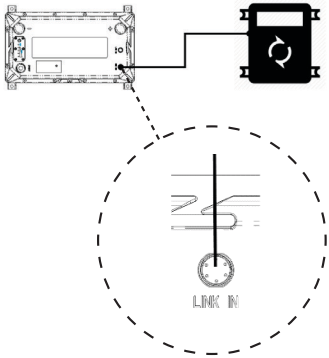
Setup

Use this connection method to set up a communication device such as a Victron Cerbo GX.

1. Ensure you have the right cables to connect to the battery. You may need our battery to inverter cable which is CAN-to-RJ45. These are sold seperately.
2. Connect the CAN connector to the Link-In port on Battery One
3. If setting up in a parallel or series connection, do this now.
4. Ensure you setup using a Wired Connection method using the instructions in the pages before
5. Important!!! Press and hold the reset button for 20 seconds wait for the lights to run and stop. This will take approx 2 mins to complete. If lights flash, reattempt
6. If you require special information on Victron set up, please contact our Customer Service team on 1300 001 772



Communication line connection method:



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Battery Recycling

Invicta Lithium® Xero lithium-ion batteries are recyclable and should not be treated as household waste or landfill waste. If you need assistance in recycling batteries, please get in touch with your dealer or Invicta Lithium.

Transportation and Storage

- During transportation, there should be no severe vibration, impact, or compression, and it should be protected from sunlight and rain.
- Handle with care during loading and unloading, and strictly prevent falling, rolling, and heavy pressure.
- The battery should be stored in a dry, clean, dark, and well-ventilated indoor environment for a long time. The recommended storage temperature range is 15~35 .
- The storage area should be free of harmful gases, flammable and explosive materials, and corrosive chemicals.

Warranty

Invicta has a 7-year full replacement warranty when installed in an approved application and when instructions in this manual have been followed. Please refer to your warranty card or invictalithium.com.au and register your battery to ensure your battery is in an approved application. A copy of the warranty statement can be found at www.invictalithium.com.au/warranty-statement/.

Contact Details

A range of resources can be found at invictalithium.com.au. This includes specifications, product registration and our warranty statement. If you require further assistance with your Invicta battery, please contact Sealed Performance Batteries (SPB) on 1300 001 772 or info@spb.net.au.
Invicta Lithium is a brand and registered tradmark of Sealed Performance Batteries (SPB), a company that has over 25 years experience in energy storage and are located in Brisbane, Sydney and Melbourne. For more information on SPB please visit spb.net.au

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