

# USER GUIDE

# ITW-BC4/8

## INTELLIGENT BATTERY CHARGER



**iTECHWORLD**  
THE POWER EXPERT

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# OVERVIEW

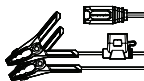
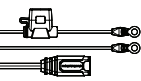
Introducing the ITW-BC4/ ITW-BC8 Battery Charger, a smart and multi-stage lithium battery charger that incorporates the latest switch-mode battery charging technology. Engineered for 12V and 6V batteries, this charger ensures rapid and efficient charging through a multi-stage algorithm.

The ITW-BC4/ ITW-BC8 not only enhances the longevity of battery cells but also acts as a safeguard against premature battery failure. Additionally, it features an innovative power supply function designed to awaken and recharge select iTechworld lithium batteries out of safe mode, effectively revitalising your batteries. Welcome to the cutting-edge technology of the ITW-BC4/ ITW-BC8, your reliable partner for effective and intelligent battery charging.

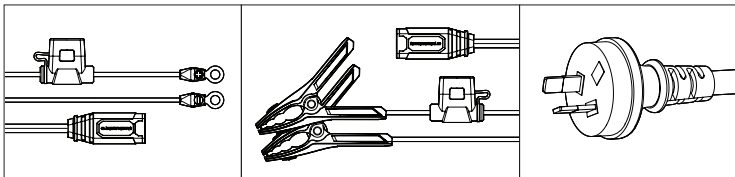
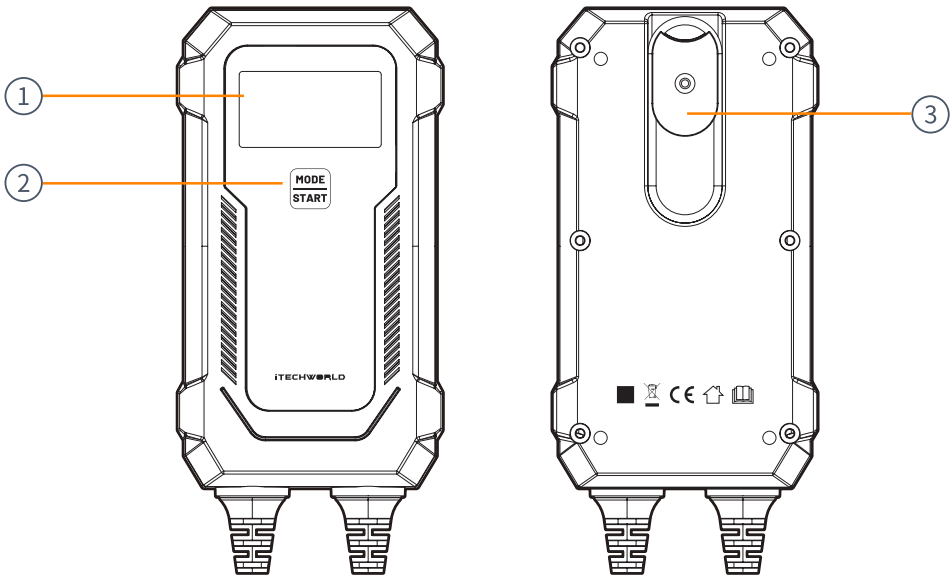
## KEY FEATURES

- Compatible with most battery types
- Multistage charging
- Wakes select iTechworld batteries from safe mode
- Temperature controlled charging
- Constant regulated output
- Simple, automatic operation
- Custom iTechworld charging algorithm

## PACKAGE CONTENTS

|                                                                                                         |                                                                                                            |                                                                                                             |                                                                                                   |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <br>ITW-BC4 / ITW-BC8 | <br>Clamp Adapter Cable | <br>Eyelet Adapter Cable | <br>User Guide |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|

## UNIT DIAGRAM

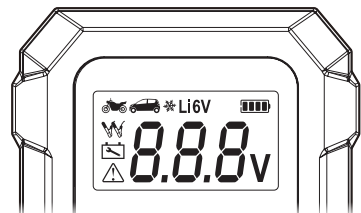


- |                 |                        |
|-----------------|------------------------|
| ① LCD DISPLAY   | ④ EYELET ADAPTER CABLE |
| ② MODE BUTTON   | ⑤ CLAMP ADAPTER CABLE  |
| ③ MOUNTING HOOK | ⑥ AC POWER PLUG        |

## LCD DISPLAY

### Battery Charging Profile

To change the battery charging mode click the 'MODE' button. Keep clicking 'MODE' until the mode you want is displayed on the screen.



# LCD CHARGE INDICATOR

| Symbol                                                                              | ITW-BC4                                                                                                                                     | ITW-BC8                                         |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
|    | 12V Slow 2A Mode<br>(Max. Voltage 14.4V)                                                                                                    | 12V Slow 4A Mode<br>(Max. Voltage 14.4V)        |
|    | 12V Slow Winter 2A Mode<br>(Max. Voltage 14.7V)                                                                                             | 12V Slow Winter 4A Mode<br>(Max. Voltage 14.7V) |
|    | 12V Fast 4A Mode<br>(Max. Voltage 14.4V)                                                                                                    | 12V Fast 8A Mode<br>(Max. Voltage 14.4V)        |
|     | 12V Fast Winter 4A Mode<br>(Max. Voltage 14.7V)                                                                                             | 12V Fast Winter 8A Mode<br>(Max. Voltage 14.7V) |
| Li                                                                                  | 12V LFP 4A Mode<br>(Max. Voltage 14.4V)                                                                                                     | 12V LFP 8A Mode<br>(Max. Voltage 14.4V)         |
| 6V                                                                                  | 6V 2A Mode<br>(Max. Voltage 7.2V)                                                                                                           | 6V 4A Mode<br>(Max. Voltage 7.2V)               |
|    | The battery is being charged.                                                                                                               |                                                 |
|    | Bad Battery: A battery fault has been detected and may need to be replaced.                                                                 |                                                 |
|                                                                                     | High Voltage: You may have chosen the wrong voltage, for example, you may charge a 12V battery with 6V mode or a 24V battery with 12V mode. |                                                 |
|  | High Temperature                                                                                                                            |                                                 |
|  | No Connection                                                                                                                               |                                                 |
|                                                                                     | Loose Connection                                                                                                                            |                                                 |
|                                                                                     | Reverse Polarity                                                                                                                            |                                                 |
|                                                                                     | Please check whether the clamps are connected properly.                                                                                     |                                                 |

# INSTALLATION

## INSTALL LOCATION

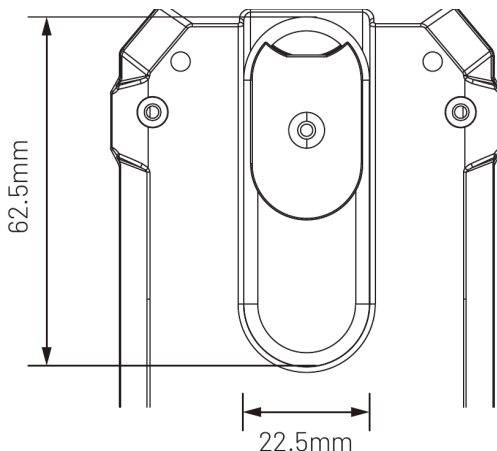
For the best performance, install the charger somewhere that is:

- **Dry:** Away from any water, spray or splashes.
- **Cool:** Out of direct sunlight and clear of heat sources.
- **Ventilated:** Maintain 10cm of open space around the unit.
- **Clean:** Keep clear of any dust.
- **Close to your battery:** Keeping cable runs short for efficient charging.

## MOUNTING

When mounting the charger to a hard surface, consider fitting anti-vibration mounts between the unit and the surface. These reduce vibration and help extend the life of the charger.

Mount the charger securely so it cannot move or shift while running.



# OPERATION

## FUSE SPECIFICATIONS

The ITW-BC4 is equipped with a 7.5A inline blade fuse for battery clamp output and a 6A inline blade fuse for eyelet output.

The ITW-BC8 is equipped with 2 x 15A inline blade fuses for battery clamp and eyelet outputs separately.

| Source |         | Fuse Size        |
|--------|---------|------------------|
| Output | ITW-BC4 | 1 x 7.5A, 1 x 6A |
|        | ITW-BC8 | 2 x 15A          |

## UNIT OPERATION

1. Connect the charger to the battery. The charger's output leads have colour coded battery clips (**RED** positive and **BLACK** negative).
2. Connect the charger to an AC 240V power socket.
3. Click the 'MODE' button to start and select your charging mode. Settings can be changed by clicking 'MODE' until you reach your desired profile.
4. Stop charging at any time by clicking 'MODE' until the LEDs clear and you're back on standby mode.

**NOTE:** The ITW-BC4 / ITW-BC8 features a memory function. The next time the unit is connected to the AC 240V supply, it will continue to charge in the mode you previously selected.

**WARNING:** When disconnecting the charger, first unplug the AC 240V cord from the power source. Then remove the clip/eyelet from the battery's negative terminal, followed by the clip/eyelet from the positive terminal.

Never charge the battery while the engine is running.

## MULTI-STAGE CHARGING PROCESS

**Stage 1:** Initial Check, analyse whether the battery will accept a charge or not.

**Stage 2:** Desulphation, detect and recover sulphated batteries with high voltage which allows the removal of sulphate from the lead plates, thus restoring initial capacity.

**Stage 3:** Soft Start, tests if the battery can accept a small amount of current. Charging will continue if successful.

**Stage 4:** Pulse Charge, the ITW-BC4 / ITW-BC8 will deliver a pulse current (charging with 2 different current values alternately) until the battery reaches 10.5V.

**Stage 5:** Re-condition, the ITW-BC4 / ITW-BC8 will constantly deliver current to charge the battery until the battery reaches 12V/6V.

**Stage 6:** Bulk, the battery is charged at its maximum current output until it reaches its final charging stage, known as its absorption. In this step, around 80% of the battery is charged as fast as possible.

**Stage 7:** Absorption, for the remaining 20% of the battery, the ITW-BC4 / ITW-BC8 output will taper off as the battery approaches full charge.

**Stage 8:** Check, once the ITW-BC4 / ITW-BC8 has fully charged the battery, the charging input will stop and the battery voltage is monitored.

**NOTE:** If the voltage of the battery under load falls back to its previous voltage, this indicates a high internal resistance or a high level of sulphation.

**Stage 9:** Float, the ITW-BC4 / ITW-BC8 voltage is lowered and held at a constant and safe predetermined level. This prevents the battery from being overcharged, yet allows the charger to supply enough current to make up for the self-discharge losses of the battery, while supporting any additional loads connected to the battery.

# MAINTENANCE

Before carrying out any maintenance, switch the charger off and disconnect it from both the battery and the AC 240V supply.

Inspect the charger and the area around it periodically to make sure it stays dry, clean and clear of obstructions. Check the cables for any damage or wear, make sure connections stay clean and corrosion free, and address anything you find before using the charger again.

Wipe the outside with a dry cloth to stop dust and dirt building up.

## STORAGE

When preparing the charger for storage:

1. Ensure the charger is in standby mode and unplug the AC 240V input cable.
2. Disconnect the positive and negative cables from the battery.
3. Store the charger in a dry, clean place away from heat and moisture.

# SPECIFICATIONS

| General Specifications    |                       |                  |
|---------------------------|-----------------------|------------------|
| Model (SKU)               | ITW-BC4               | ITW-BC8          |
| Dimensions (LxHxW)        | 172 x 81 x 48mm       | 212 x 111 x 55mm |
| Weight                    | 0.5kg                 | 0.7kg            |
| Operating Temperature     | -20°C to 45°C         |                  |
| IP Rating                 | IP65                  |                  |
| Charger                   |                       |                  |
| Charge Type               | 9                     |                  |
| Charge Efficiency         | >85%                  | >80%             |
| Battery Types             | Lead-Acid and LiFePO4 |                  |
| Input                     |                       |                  |
| AC Input Voltage          | AC 220V to 240V       |                  |
| AC Input Frequency        | 50Hz                  |                  |
| Max Input Current         | 0.5A                  | 0.9A             |
| Max Input Power           | 120W                  | 216W             |
| Standby Current           | <1mA                  |                  |
| Output                    |                       |                  |
| Output Voltage            | 6V/12V                |                  |
| Continuous Output Current | 4A                    | 8A               |
| Output Fuse Rating        | 1 x 7.5A, 1 x 6A      | 2 x 15A          |

# TROUBLESHOOTING

## FAULT CODES

| Issue                           | Possible Cause   | Solution                                                                   |
|---------------------------------|------------------|----------------------------------------------------------------------------|
| Charger is not outputting power | Reverse polarity | Check RED is on positive (+) and BLACK on negative (-). See unit operation |
|                                 | Short circuit    | Check the cables are connected correctly. See unit operation               |
|                                 | Poor connection  | Check the cables are connected correctly and securely. See unit operation  |
|                                 | Blown fuse       | Check the output fuses and replace if blown. See replacing a fuse          |
|                                 | No AC input      | Check the AC 240V power source, failing that try a different outlet        |
|                                 | Over temperature | Disconnect the cables and let the charger cool down. See install location  |
| Charger is not reaching float   | Battery fault    | Test the charger on another battery                                        |
|                                 | Constant load    | Reduce or disconnect the load connected to the battery                     |
|                                 | Cable size       | Use the supplied or correctly sized cables. See selection of cable size    |

# SAFETY PRECAUTIONS

For safe operation and optimal performance, the ITW-BC4 / ITW-BC8 Intelligent Battery Charger must be installed and operated correctly. Please carefully read, understand and follow all instructions and guidelines in this user guide. iTechworld recommends that a certified technician install the ITW-BC4 / ITW-BC8 charger. 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:**

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 charger.

## **WARNING:**

Please select the correct battery charging profile applicable to the auxiliary battery. Selecting the incorrect battery charging profile may cause damage to your auxiliary battery or result in a fire. If you are unsure of the correct battery charging profile to use, please consult your battery's manufacturer.

## **WARNING:**

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

## **WARNING:**

Ensure that the selected battery charging profile's charge voltage does not exceed the battery's recommended maximum charging voltage. If you are unsure of the maximum charging voltage of your battery, please consult your battery's manufacturer.

**WARNING:**

Ensure that the continuous output current of the charger does not exceed the battery's recommended maximum charging current. If you are unsure of the maximum charging current of your battery, please consult your battery's manufacturer.

**WARNING:**

When using the charger to charge a lithium battery, ensure that it contains an inbuilt battery management system (BMS) that features under and over voltage protection with cell balancing. Failure to do so may result in fire, death or serious injury.

**WARNING:**

Do not drop the ITW-BC4 / ITW-BC8.

**WARNING:**

Do not connect the ITW-BC4 / ITW-BC8 and its accessories to equipment if there is a defect.

**DANGER:**

Do not disassemble or modify the charger, as doing so may result in a risk of electrical shock, fire, death or serious injury. This will also void the warranty.

**DANGER:**

This charger is only suitable for the battery types listed in the manual. Do not use it for other purposes.

**DANGER:**

Do not touch the DC output cables together when the charger is switched on or in power supply mode, as doing so may result in a risk of electrical shock, fire, death or serious injury.

**LIMITATIONS OF USE:**

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

**WARNING:**

Ensure the unit does not get wet or is submerged in water.

# iTECHWORLD

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## CONTACT US



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At iTechworld, we proudly lead the way in pioneering innovative off-grid power and battery solutions that bring cutting-edge technology to adventure seekers, remote workers, and outdoor enthusiasts across Australia. Since we began our journey all the way back in 2006, our passion has been to develop high-performance lithium batteries, solar panels, power stations, generators, and battery management systems tailored to caravans, camping, 4WDs, and off-grid living.

We believe in empowering people with reliable, portable, and efficient energy solutions, giving them the power they need, wherever their journey takes them. Our commitment to quality is unwavering, with every product rigorously tested to meet Australian conditions and backed by our knowledgeable power experts.

Driven by innovation, reliability, and sustainability, iTechworld is your trusted partner in power solutions, helping you stay powered anywhere, anytime.

**iTechworld. The Power Expert.**

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