USER GUIDE

ITW-BC20-24

INTELLIGENT BATTERY CHARGER



iTECHWORLD
THE POWER EXPERT

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Ver 1.0

QUICK START GUIDE

Step 1: Ensure the power switch on the side panel is in the **OFF** position and the unit is not connected to AC 240V power.

Step 2: Connect the DC 24V output cables to the battery. Connect the **RED** cable to the battery positive (+) terminal and the **BLACK** cable to the battery negative (–) terminal.

Step 3: Connect the iTechworld ITW-BC20-24V to an AC 240V outlet.

Step 4: Flip the power switch to **ON**. The LED lights should now be on.

Step 5: Press the "Battery Type" button to select your battery type. The charger will then begin charging.

Step 6: Verify that the charger is functioning properly.

You will know the charger is outputting power when the power, charging, and battery type LEDs are solid.

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OVERVIEW

Keep your 24V battery charged, healthy and ready to go. The iTechworld ITW-BC20-24 is a smart, multistage charger that delivers fast, consistent and stable charging from AC 240V power.

It does more than charge. It actively protects your battery against overcharging and other faults to help extend cycle life, wakes iTechworld batteries from safe mode, and universally revives batteries sitting at low voltage, bringing them back to life.

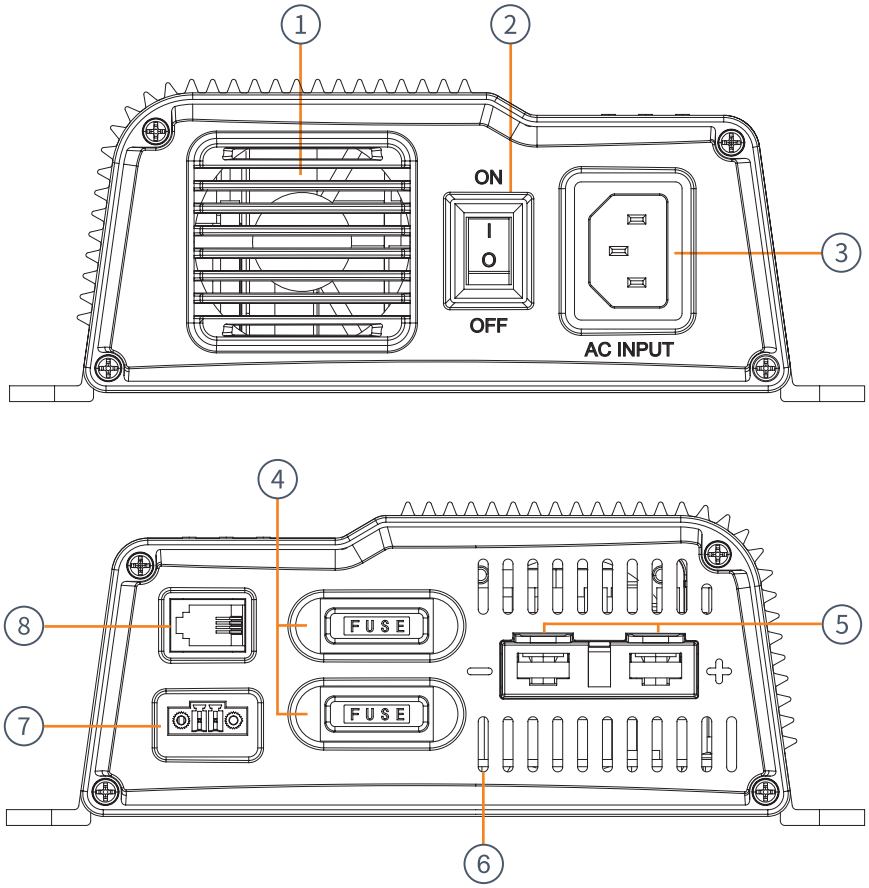
KEY FEATURES

- Compatible with most battery types
- Rugged heat dispersing case
- Multistage charging
- Custom iTechworld charging algorithm
- Wakes iTechworld batteries from safe mode
- Temperature controlled charging
- Power supply and silent mode
- Constant regulated output
- Adjustable float voltage
- Various safety features including built in fuses
- Simple, automatic operation

PACKAGE CONTENTS

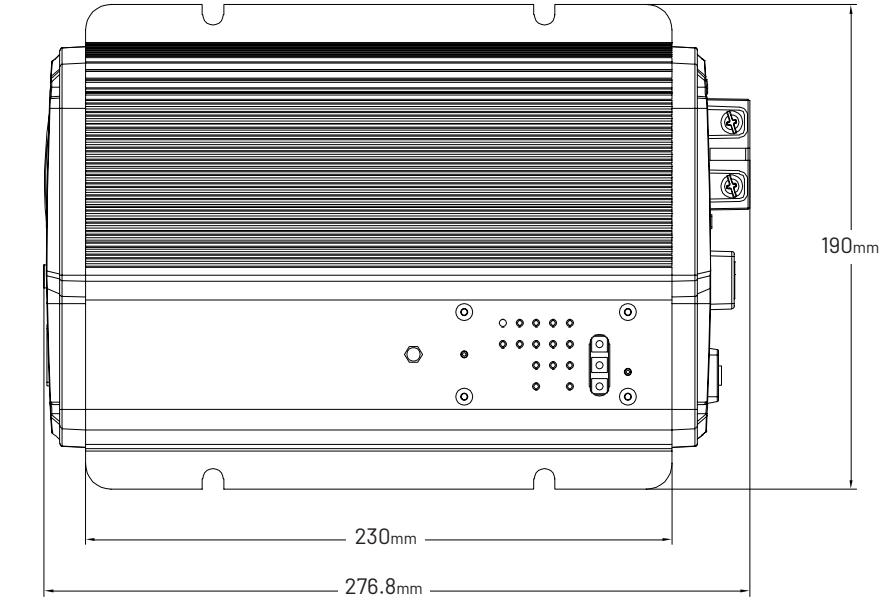
 ITW-BC20-24	 Battery Connection Cables	 AC Input Cable	 Temperature Sensor	 User Guide

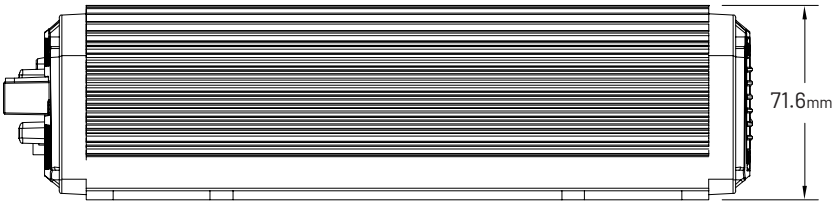
UNIT DIAGRAM



1. AIR INLET
2. POWER SWITCH
3. AC 240V INPUT PORT
4. OUTPUT FUSES
5. DC 24V OUTPUT TERMINALS
6. AIR OUTLET
7. TEMPERATURE SENSOR PORT
8. REMOTE PORT

SIZING GUIDE





LED DISPLAY

The LED display shows you the charger's current status. Use the Battery Type, Float Voltage and Mode buttons to set up and control the charger, and read the LEDs to check its status.

Reading the LEDs

Power	Fault	Full	Charging	Battery Type	Status
●	○	○	○	○	Standby
●	○	○	●	●	Charging
●	○	●	○	●	Float
●	●	○	○	○	Fault

● = On ○ = Off

Modes

Power Supply Mode: Short press the **MODE** button to output a regulated DC 25V at 20A, with or without a battery connected. Can only be activated from standby.

Silent Mode: Short press the **MODE** button while charging to stop the cooling fan for quieter running. The output is limited to 5A. Can only be activated while the charger is actively charging.

INSTALLATION

INSTALL LOCATION

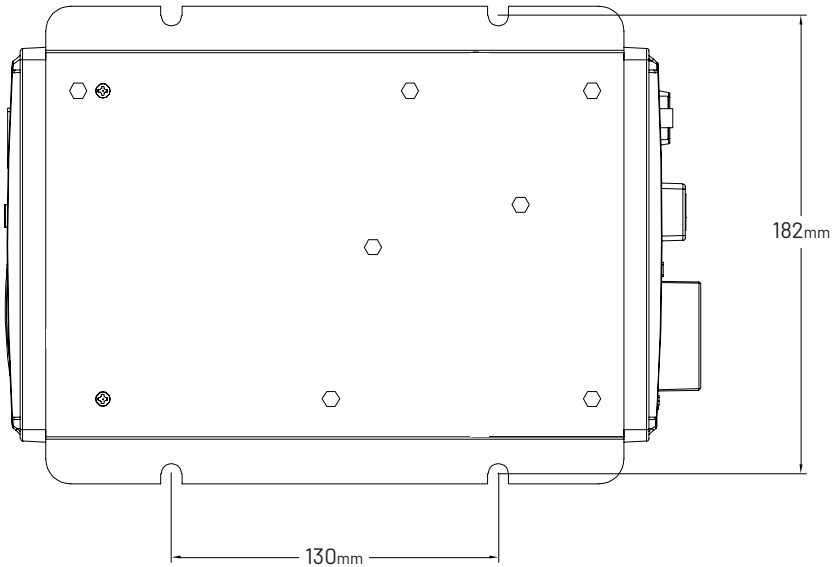
For the best performance, install the charger somewhere that is:

- **Dry:** away from any water, spray or splashes
- **Cool:** out of direct sunlight and clear of heat sources
- **Ventilated:** with 10cm of open space around the air inlet and outlet
- **Clean:** away from dust, which clogs the fan and shortens the charger's life
- **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.



SELECTION OF CABLE SIZE

The supplied charger cables may not be long enough for your setup. If you need to extend them, use cable equal to or greater than the gauge shown below.

Cable Length	Recommended Gauge
Up to 3m	10AWG (5.3mm^2)
3 to 6m	6AWG (13.3mm^2)
6 to 9m	6AWG (13.3mm^2)

iTechworld strongly recommends that a qualified electrician carries out this work. A poor connection can cause a short circuit, which may lead to fire and property damage.

To extend the cables, use soldered butt splice connectors for the lowest resistance. Crimp both ends of the connector, then solder both sides. Once the connection is secure, cover it with heat shrink tubing to protect it and prevent short circuits. Use a butt splice connector rated for the wire gauge you are joining.

TEMPERATURE SENSOR

The charger has built in temperature protection that works without the sensor fitted, so installing the included temperature sensor is optional. When fitted to the positive terminal of your battery, it moves the temperature reading from inside the charger to the battery itself. The charger then adjusts the charging voltage to the battery's actual temperature, raising it in colder conditions for efficient charging and lowering it when hot to prevent overheating. This protects your battery and helps extend its life.

OPERATION

UNIT OPERATION

1. Ensure the power switch on the side panel is in the **OFF** position and the charger is disconnected from AC 240V power.
2. Connect the DC 24V output cables to the battery you want to charge. Connect the **RED** cable to the battery positive (+) terminal and the **BLACK** cable to the battery negative (–) terminal.
3. Plug in the AC input cable and switch on the AC 240V supply.
4. Turn the power switch to the **ON** position.
5. Press the "Battery Type" button to select your battery type. Once selected, the charger will begin outputting power and start charging your battery.

The charger automatically cycles between charging stages, so you can safely leave it connected indefinitely.

The charger has a memory function. The next time you connect it to AC 240V power, it will charge in the same mode you selected last.

FLAT BATTERY RECOVERY

The charger can recover flat batteries that other chargers cannot detect, including batteries reading as low as 0V.

iTechworld Batteries: The charger is tailored to iTechworld batteries and will automatically lift them out of safe mode. Connect the charger and select your battery type as normal. No extra steps are needed.

Other Batteries: To wake a flat battery from another brand, use power supply mode. Short press the MODE button from standby to output a regulated DC 25V at 20A, with or without a battery connected. This lifts a flat battery to a level where normal charging can begin. Once the battery has lifted, return the charger to standby, select your battery type and charge it as normal.

A battery left at 0V for an extended period may not be recoverable, and one that continually disconnects during recovery is likely damaged beyond repair.

MULTISTAGE CHARGING PROCESS

Stage 1: Bulk. The charger delivers its full output to the battery until it reaches its absorption voltage. This charges the battery to around 80% as fast as possible.

Stage 2: Absorption. The charger tapers its output as the battery takes on the final 20% and approaches full charge.

Stage 3: Float. The charger lowers the voltage and holds it at a safe, constant level. This keeps the battery topped up without overcharging it, replacing the battery's natural self discharge and supporting any loads connected to it.

Stage 4: Maintenance. Once in float, the charger stops outputting power. If the battery drops below a set level (which depends on your battery type), the charger automatically resumes to maintain its state of charge.

BATTERY CHARGING PROFILE

To change the battery type, float voltage or charger mode, briefly press the matching button. Each press moves the indicator one LED to the right.

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 from time to time 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. Check that the DC 24V output terminal screws are tight, and tighten them if needed to keep a good, low resistance connection.

Note: There are no user serviceable parts inside the charger. Do not open the unit. If your charger develops a fault, contact the iTechworld service centre.

STORAGE

When preparing the charger for storage:

1. Switch the charger off and unplug the AC input cable.
2. Disconnect the cables from the battery.
3. Store the charger in a dry, clean place away from heat and moisture.

SPECIFICATIONS

General	
Model (SKU)	ITW-BC20-24
Dimensions (LxHxW)	277 x 182 x 72mm
Weight	1.6kg
Operating Temperature	–20°C to 45°C
IP Rating	IP20
Output	
Output Voltage	DC 24V
Continuous Output Current	20A
Output Fuse Rating	30A (2 x 15A)
Input	
AC Input Voltage	AC 220V to 240V
AC Input Frequency	50Hz to 60Hz
Max Input Current	4.5A
Max Input Power	660W
Standby Current	<2mA
Charger	
Charge Type	4 Stage
Charge Efficiency	90%
Battery Types	Standard lead acid, GEL, AGM, Calcium, LiFePO4
Suitable Battery Capacity	50 to 600Ah
Minimum Battery Voltage	0V
Power Supply Mode Output	DC 25V at 20A
Silent Mode Output	5A

Charging Profile

	STD	GEL	AGM	Calcium	LiFePO4
Bulk	20A				
Absorption	28.8V	28.2V	29.4V	31V	28.8V
Float	26.4V	27V	27.6V		

TROUBLESHOOTING

FAULT LED INDICATORS

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

REPLACING A FUSE

The charger has two external 15A blade fuses that are replaceable if they blow. If the charger stops working, check these fuses and replace any that have blown with the same rating.

If you have worked through the above and still need assistance, contact the iTechworld service centre at service@itechworld.com.au.

SAFETY PRECAUTIONS

For safe operation and optimal performance, the iTechworld ITW-BC20-24V must be installed and operated correctly. Please carefully read, understand and follow all instructions and guidelines in this user guide. iTechworld recommends that a qualified electrician installs the charger. Failure to follow these instructions may result in damage to the unit or property, serious injury or death.

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 without notice at any time.

For the most up to date information, please visit our website.

WARNING:
The charger is not waterproof (IP20 rated). Use it indoors or in a dry, protected location only. Do not expose it to rain, moisture or splashing water. Water entering the charger may cause electrical shock, fire, serious injury or death.

WARNING:
Connect the charger to an earthed AC 240V socket only. Do not use the charger if the AC input cable is damaged. A damaged cable may cause electrical shock, fire, serious injury or death.

WARNING:
The charger should not be used by people with physical, sensory or mental impairments (including children). Supervise children to make sure they do not play with the charger.

WARNING:
Select the correct charging profile for your battery. Choosing the wrong profile can damage your battery or cause a fire. If you are unsure, check with your battery manufacturer.

WARNING:
Do not let the charge voltage exceed your battery's maximum charging voltage. If you are unsure, check with your battery manufacturer.

WARNING:
Only use the fuses and wires recommended in this guide. Using others may damage the charger and cause electrical shock, fire, serious injury or death.

WARNING:
When charging a lithium battery, make sure it has an inbuilt battery management system (BMS) with under and over voltage protection and cell balancing. Failure to do so may cause fire, serious injury or death.

DANGER:
Do not disassemble or modify the charger. This may cause electrical shock, fire, serious injury or death, and will void your warranty. There are no user serviceable parts inside. Return any faulty unit to the iTechworld service centre.

DANGER:
Do not connect the charger with the polarity reversed. This may cause electrical shock, fire, serious injury or death.

DANGER:
Do not touch the DC 24V output cables together while the charger is switched on or in power supply mode. This may cause electrical shock, fire, serious injury or death.

DANGER:
Only charge the battery types listed in this guide. Do not use the charger for any other purpose.

EXPLOSION HAZARD:
Do not use the charger near flammable fumes or gases, such as gas bottles, petrol engines or lead acid battery compartments.

LIMITATIONS OF USE:
Do not use the charger with life support systems or other medical equipment or devices.

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CONTACT US



1300 483 249

service@itechworld.com.au

www.itechworld.com.au

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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