USER GUIDE
MINI POWER CORE CANOPY SYSTEM

iTECHWORLD
THE POWER EXPERT

Ver 1.0

CONTENTS

OVERVIEW

The iTechworld Mini Power Core is a compact all-in-one unit, designed to upgrade and simplify your existing 12V power system. Housed in a durable industrial-grade case, it comes pre-wired and professionally built, making installation straightforward and removing the complexity of traditional 12V setups.

The integrated multi-stage 40A DCDC charger works with all common 12V batteries, delivering efficient charging with minimal energy loss. Built-in protections also safeguard your system against surges and short circuits.

A battery monitor and shunt provide real-time data on voltage, current, and capacity at the touch of a button, giving you complete visibility and control over your power system.

KEY FEATURES

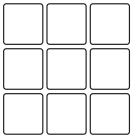
- Built-in 40A DCDC charger (iTECHDCDC40)
- Built-in advanced battery monitor with 500A shunt (iTECHBM500)
- Built-in 8 gang switch panel (8-GANG-SWITCH)
- Pre-drilled AC charger mounting points
- Power up to 16 devices at once
- 12V 10A cigarette lighter output
- 2 x quick charge USB / USB-C outputs
- 5 x IN / OUT 50A Anderson plugs
- Heavy gauge copper wiring
- Various output fuses

PACKAGE CONTENTS

Mini Power Core

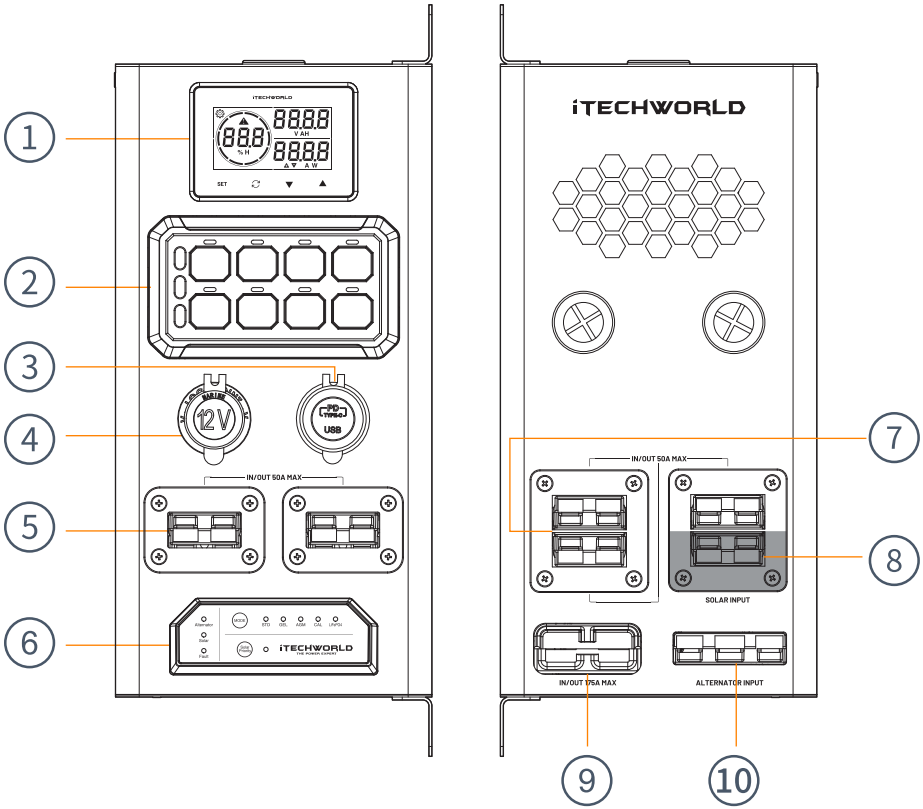
Mounting kit (4 x Brackets,
16 x M6, 4 x M4 Combination Screws)

2 x 30A Fuses, 2 x 20A Fuses,
2 x 15A Fuses, 2 x 10A Fuses



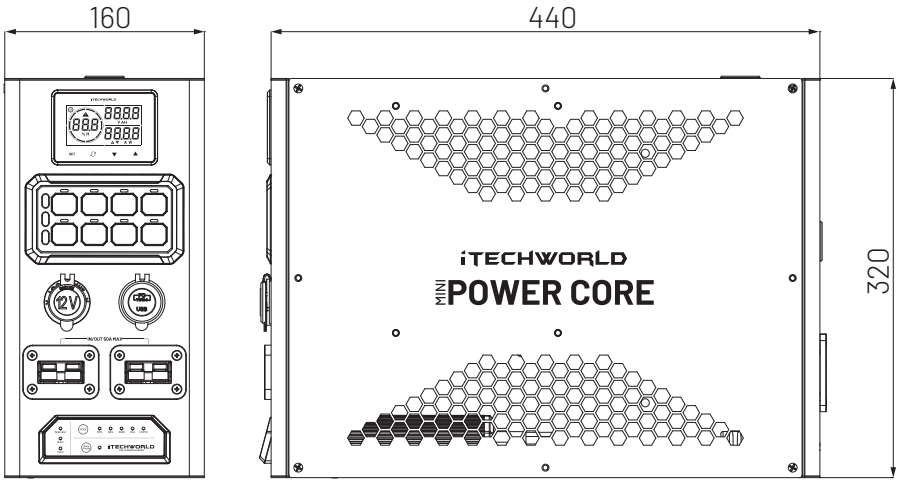
2 x Switch Panel Labels

UNIT DIAGRAM

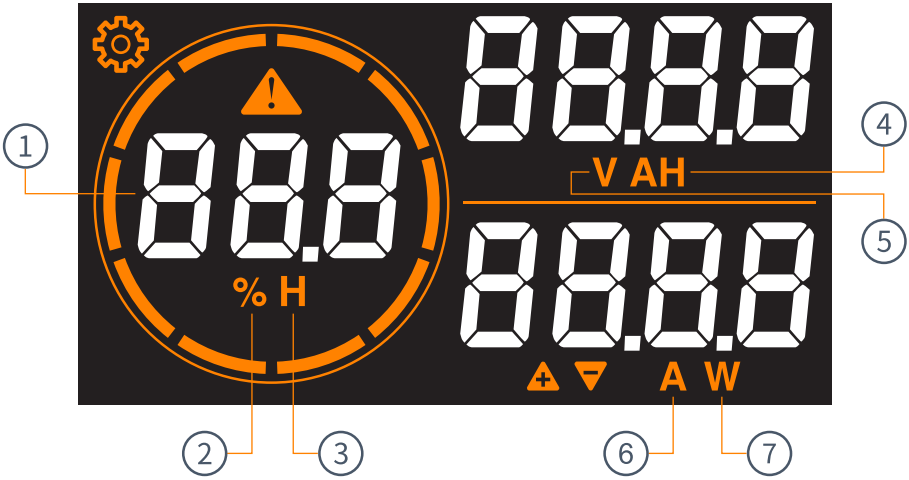


1. ADVANCED BATTERY MONITOR
2. 8 GANG SWITCH PANEL
3. USB / USB-C OUTPUTS
4. 12V 10A CIGARETTE LIGHTER OUTPUT
5. 2 X IN / OUT 50A ANDERSON PLUGS
6. ITECHDCDC40
7. 3 X IN / OUT 50A ANDERSON PLUGS
8. DCDC SOLAR INPUT
9. 175A ANDERSON PLUG INPUT
10. DCDC ALTERNATOR INPUT

SIZING GUIDE



LED DISPLAY



1. **STATE OF CHARGE**
2. **PERCENTAGE**
3. **TIME REMAINING**
4. **Ah REMAINING**
5. **VOLTAGE**
6. **AMPERAGE**
7. **WATTAGE**

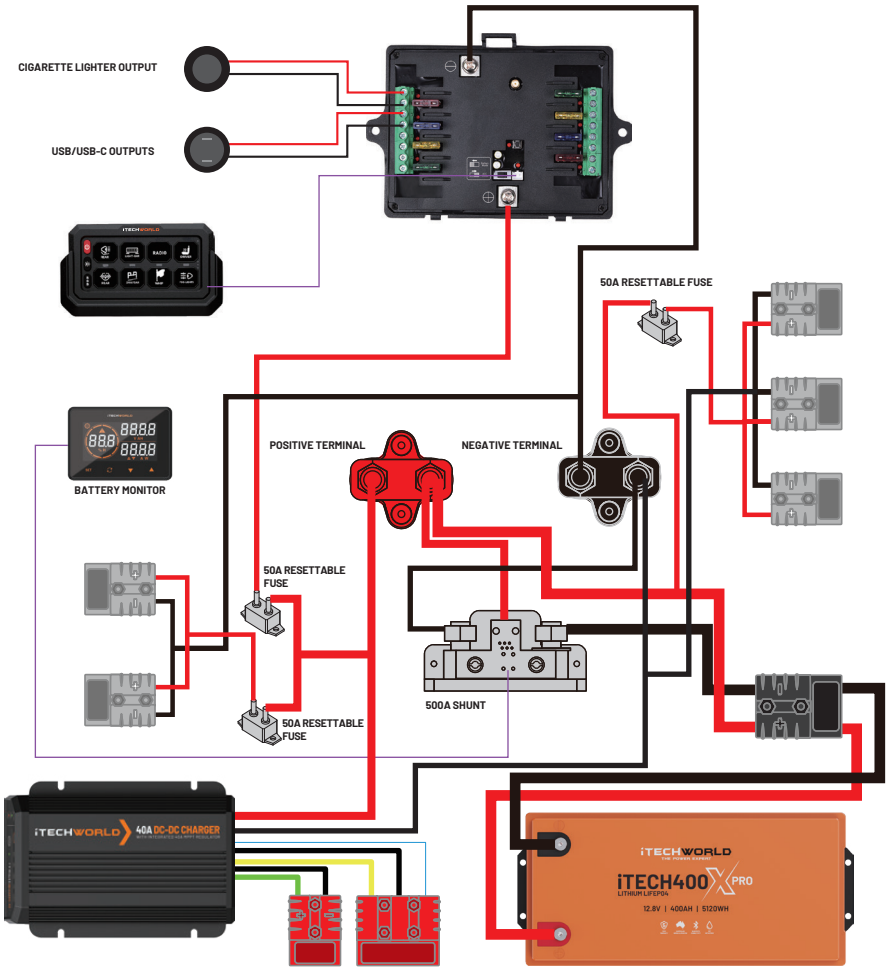
OPTIONAL ACCESSORIES

DCDC Charger Install Kit
(DCDCINS-KIT-1)

175A Anderson to Eyelets
(GF-INV-CABLE)

40A AC Charger
(BC40-NEW)

WIRING DIAGRAM



(SOLD SEPARATELY)

Cable Sizes

4mm²	8mm²	12mm²
6mm²	10mm²	14mm²

NOTE: All external cable sizes provided are a guide only. Load requirements may vary. Please size accordingly, if unsure, refer to local standard regarding cable sizing for external loads.

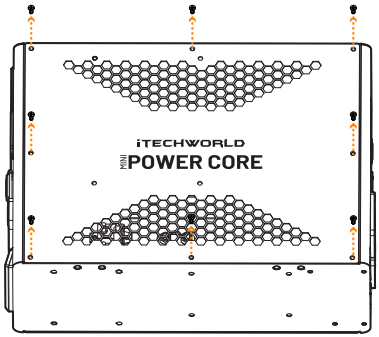
INSTALLATION

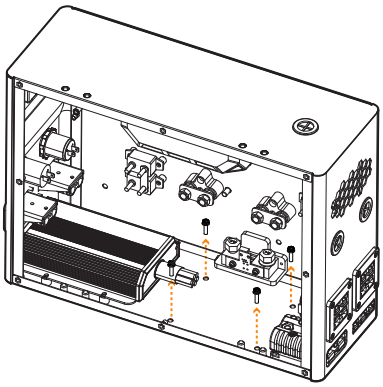
MOUNTING

Mount the Mini Power Core on a flat, stable surface such as a canopy wall, 4WD tub, vehicle frame, or wood backing panel. The unit must be kept away from moisture and excessive dust.

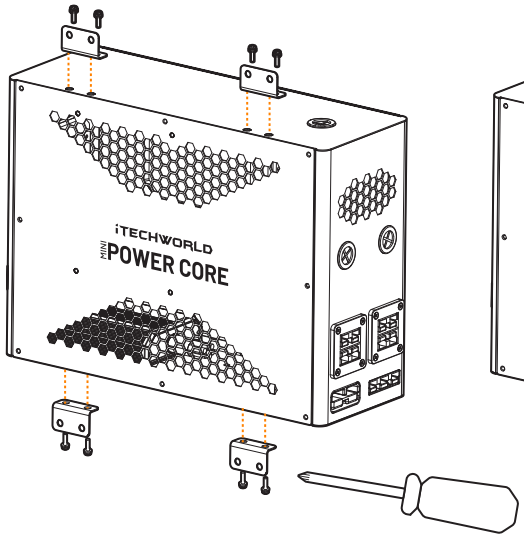
There are three different ways you can mount your Mini Power Core, outlined below:

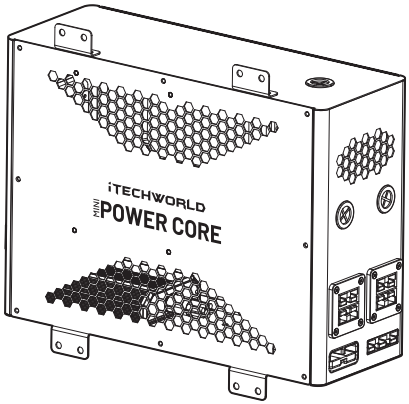
UPRIGHT MOUNTING



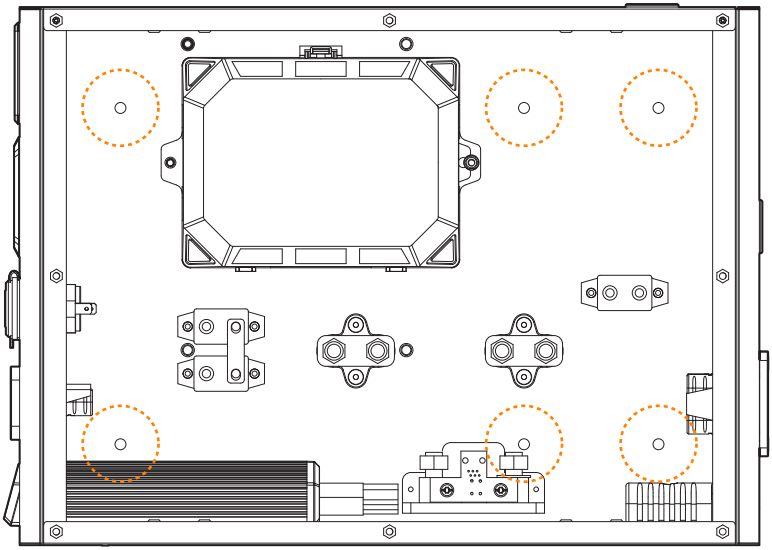


RIGHT SIDE MOUNTING





LEFT SIDE MOUNTING

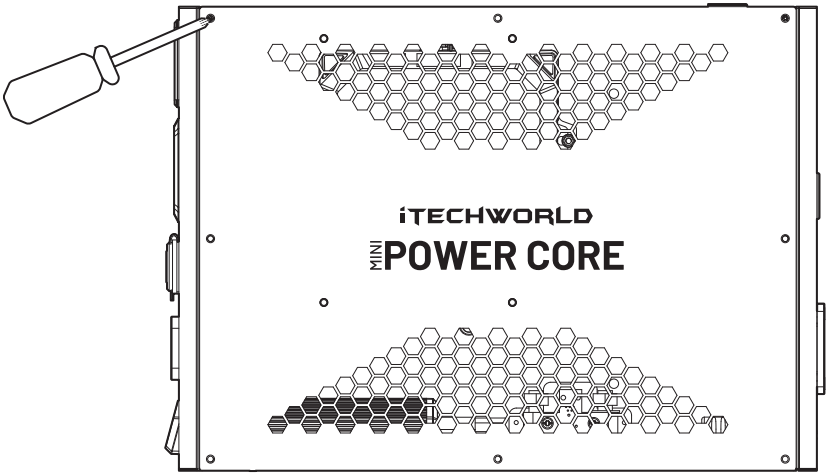


NOTE: If installing the Mini Power Core into a high vibration environment, use nylon washers or rubber grommets to help reduce vibration.

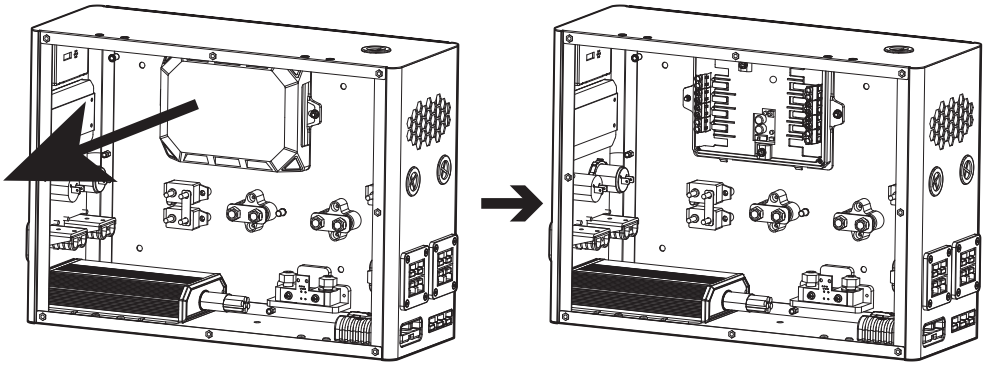
SWITCH PANEL WIRING

WARNING: Disconnect all battery power before beginning installation.

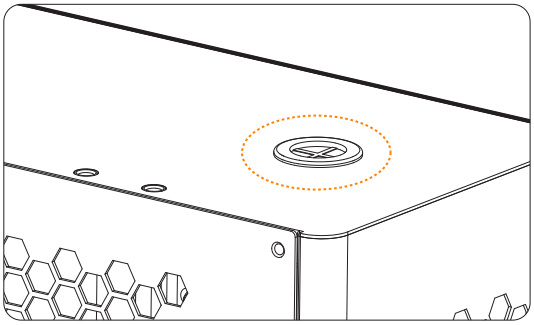
1. Remove the 8 screws and lift the side panel of the Mini Power Core to access the internals.



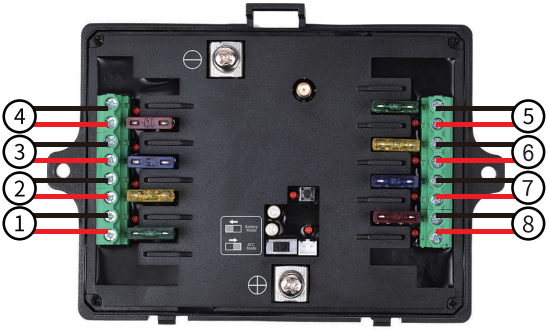
2. Remove the cover of the control box inside the Mini Power Core.



3. Use the O-ring grommets on the unit to route your cabling. This can be done through the upper O-ring on the top, or either of the two O-rings positioned on the back.

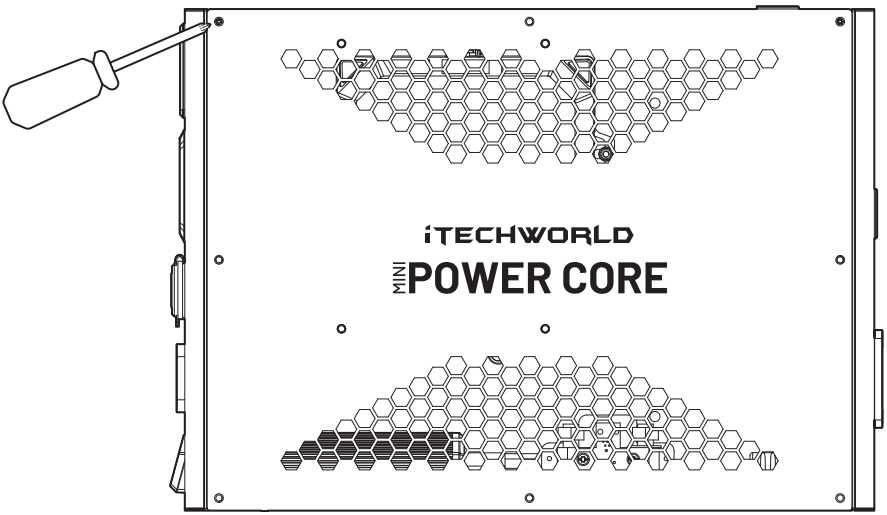


4. Wire the control box according to the diagram below:



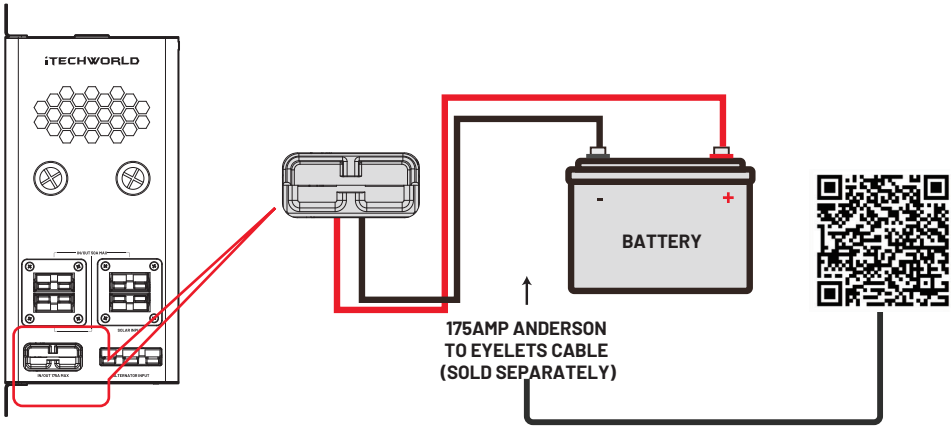
①	**30A MAX**	③	**15A MAX**	⑤	**30A MAX**	⑦	**15A MAX**
②	**20A MAX**	④	**10A MAX**	⑥	**20A MAX**	⑧	**10A MAX**

5. Organise the wiring within the Mini Power Core. Ensure cables are not pinched, crushed, or routed across sharp edges. Carefully lower the side panel back into place, making sure it is properly aligned, and the screws are not overtightened.



BATTERY CONNECTION

1. Connect a 12V auxiliary battery via the 175A Anderson plug input.



2. Once connected, the advanced battery monitor (iTECHBM500) display will illuminate.

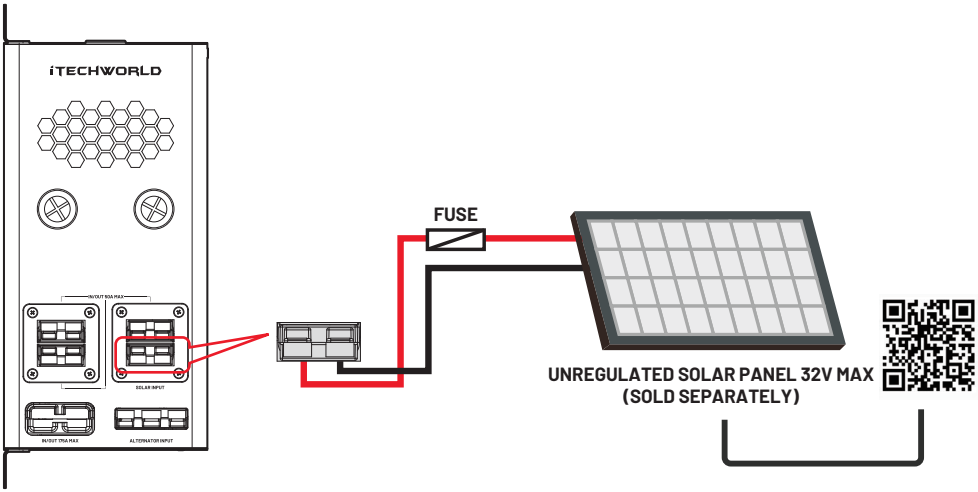
NOTE: When selecting a battery to pair with your Mini Power Core, we recommend using a 100Ah battery or larger. The chosen battery must be within the specifications of the inbuilt iTECHDCDC40 battery charger. For more information and to view our battery range, scan the QR code below.

iTechworld 100Ah + Battery Range

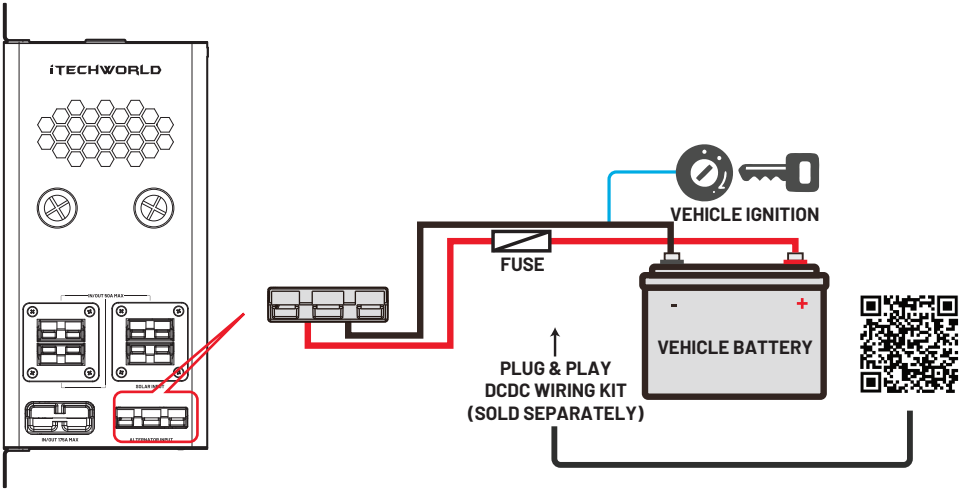
CHARGING CONNECTIONS

There are four different ways to charge the connected battery through the Mini Power Core:

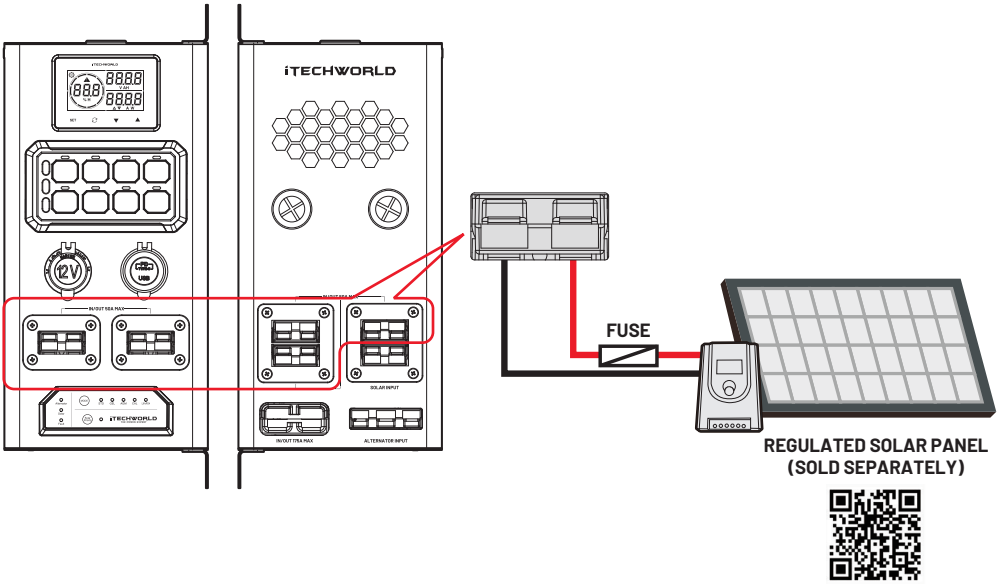
DCDC Solar Charging:



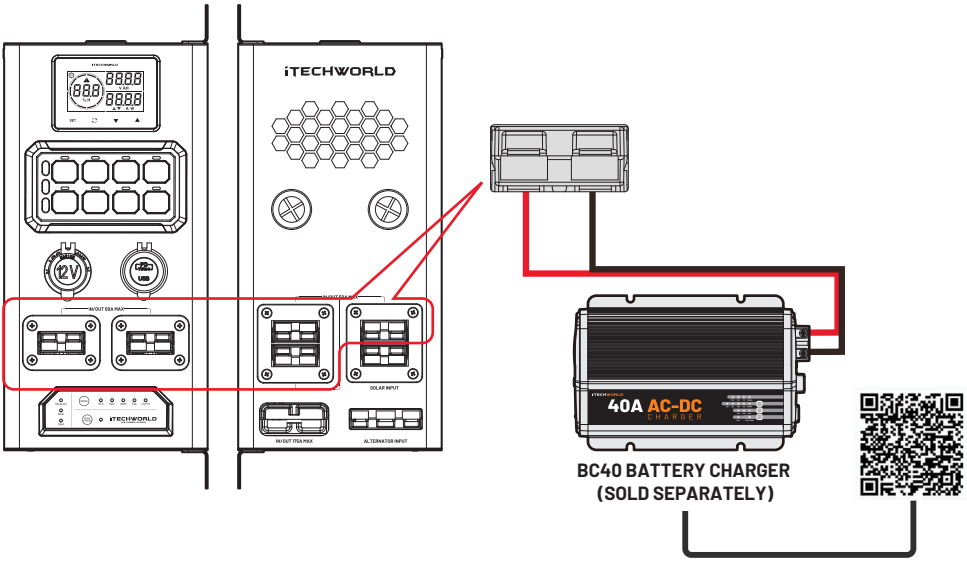
DCDC Alternator Charging:



Regulated Solar Charging:

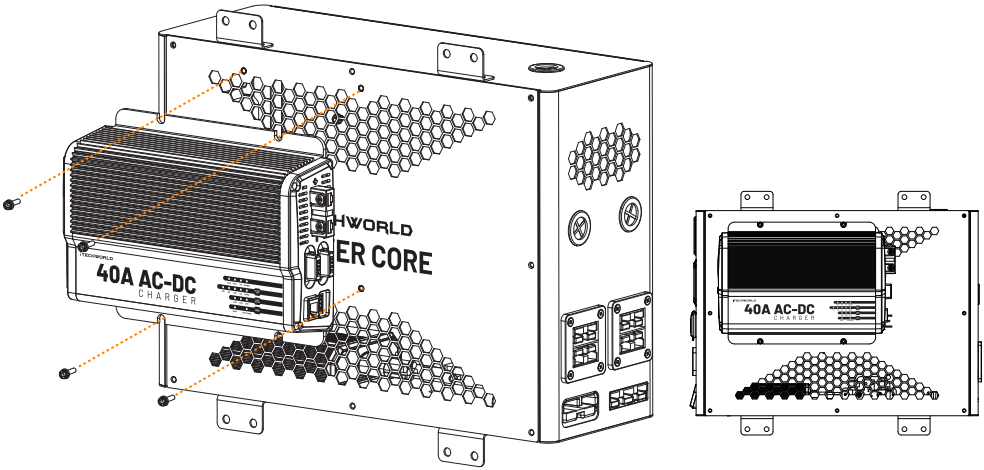


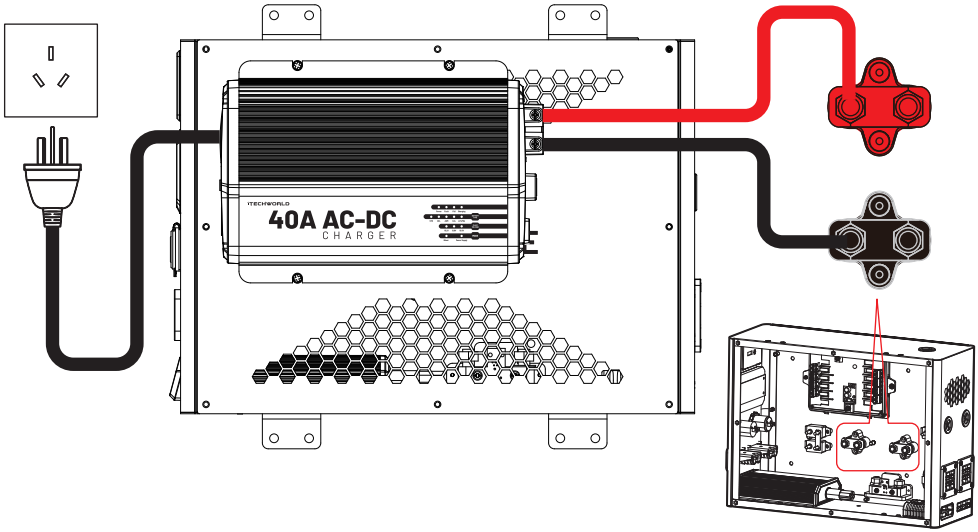
AC Charging:



OPTIONAL ITECHBC40 MOUNTING

Locate the four mounting points on the side of the Mini Power Core, align the iTECHBC40 battery charger (sold separately), and securely fasten it with screws.





OPERATION

BATTERY MONITOR & SETUP

1. Enter the settings screen by pressing and holding the SET button.

2. Enter the SET1 interface to set the overvoltage value and adjust through the up and down arrows. This value should be 1V above the battery's stated maximum voltage to allow for a higher float change voltage. Recommended settings for lithium batteries are as follows.
   - Lithium: 15V

3. After setting the overvoltage value, short press the SET button to enter the SET2 interface for the undervoltage settings. As before, adjust the values with the up and down arrows. This value represents the voltage at 0% capacity. Please be aware that this number will vary depending on battery type. Recommended settings for lithium batteries are as follows:
   - Lithium: 10V

4. After setting the undervoltage value, short press the SET button to enter the SET3 interface for overcurrent settings. You must match this value with the battery's rated maximum current.

5. After setting the overcurrent value, short press the SET button to enter the SET4 interface for capacity settings. Set this value according to the actual capacity of the connected battery.

6. After setting the capacity, short press the SET button to enter the SET5 interface for percentage settings. Set the current battery percentage to 100%.

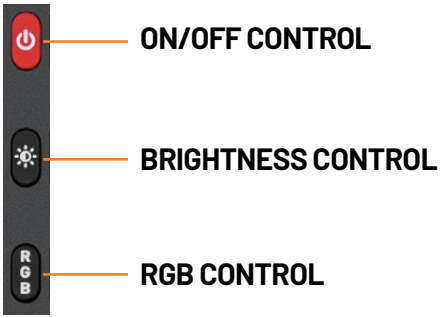
   NOTE: We recommend charging your lithium battery to 13.5V before setting your battery monitor to 100%.

7. After setting the percentage value, short press the SET button to enter the SET6 interface for backlight brightness settings. Set this value to your preferred brightness.

8. After setting the backlight brightness, short or long press the SET button to exit the setting interface and return to the home screen.

SWITCH PANEL CONTROLS

The switch panel includes multiple backlight and button activation modes. These allow you to customise how each switch behaves when pressed.



To enter backlight setup:

1. With the unit powered on, press and hold the brightness control. The backlight will flash red, indicating you've entered the backlight mode selection menu.

2. Press the brightness control again to cycle through the three available modes:

- **Red flash – Press and Hold Mode** (In this mode, the connected accessory will only remain on while the switch is held down. Releasing the switch turns it off.)

- **Blue flash – Slow Flash Mode** (The accessory flashes slowly when the button is pressed. Press again to turn it off.)

- **Fast blue flash – Fast Strobe Mode** (The accessory flashes rapidly when the switch is pressed. Press again to turn it off.)

While in any of the above modes:

1. Press the switch you want to assign the mode to. A red light on top of each switch will remain on to confirm selection.

2. Press the ON / OFF button to save your selection and exit setup.

NOTE: To return a switch to standard mode, repeat the steps above and press the switch again in the specific menu until the red light on top turns off.

Brightness:

You can adjust the brightness of the switch panel backlight to suit different environments.

Press the brightness button to cycle through the available levels:

0% - 20% - 40% - 60% - 80% - 100%

The brightness will increase with each press, then loop back to 0% once 100% is exceeded.

RGB:

You can customise the switch panel's RGB backlight to suit your setup.

Press the RGB button to cycle through the available options:

Red - Yellow - Orange - Green - Light Blue - Blue - Pink - White - RGB Slow Change with Transition - RGB Fast Change - RGB Fast Change with Transition - Red

The colour will change with each press, cycling through static colours first, followed by multi colour RGB modes. Once the final mode is reached, the sequence will loop back to red.

SPECIFICATIONS

General	
Dimensions (LxWxH)	440 x 160 x 320mm
Weight	8.3kg
USB Output	18W
USB-C Output	100W
Cigarette Lighter Output	12V 10A
IN / OUT Anderson Plugs	5 x 50A, 1 x 175A
Battery Compatibility	Lead Acid, GEL, AGM, Calcium & Lithium LiFePO4

iTECHBM500	
Input Voltage	10V - 100V
Max Input Current	500A
Voltage Accuracy	±1%
Current Accuracy	±1%
Capacity Accuracy	±1%
Power Consumption	
Screen Off	<2mA
Screen 20% Brightness	<20mA
Screen 100% Brightness	<60mA

8 GANG SWITCH PANEL	
No Load Draw	<3mA
Input Voltage	12V
Maximum Current	600W 50A
Fuse Ratings	2 x 30A / 2 x 20A / 2 x 15A / 2 x 10A
Spare Fuse Ratings	2 x 30A / 20A / 15A / 10A

iTECHDCDC40					
Alternator Input Voltage	9V - 32V				
Solar Input Voltage	10V - 32V				
Max Input Current	45A				
Standby Current	<15mA				
Output Rating					
Continuous Output Current	40A				
Selectable Battery Type	STD	GEL	AGM	Calcium	LiFeP04
Absorbtion	14.4V	14.1V	14.7V	15.5V	14.4V
Float	13.4V	13.5V	13.4V	13.6V	
Input Rating					
Input	Turn ON		Turn OFF		
12V Standard Alternator	>13.2V		<12.8V		
24V Standard Alternator	>26.2V		<25.6V		
12V Smart Alternator (Ignition Cable Connected)	>12V		<11.8V		
24V Smart Alternator (Ignition Cable Connected)	>24V		<23.6V		
Solar	>16V 2A		<10V 1.5A		

TROUBLESHOOTING

SWITCH PANEL

Device not responding:

Inspect the fuses . Replace any blown fuses with the correct type and rating. Ensure that the total connected load does not exceed the panel's output rating (60A).

FAULT CODES

iTECHDCDC40					
Alternator LED	**Solar LED**	**Battery Type LED**	**Fault LED**	**Explanation**	**Resolution**
Quick flash	-	Quick flash	-	Low voltage detected at alternator input	Check alternator input voltage
-	Quick flash	Quick flash	-	Low voltage detected at solar input	Check solar input voltage
Quick flash	Quick flash	Quick flash	-	Low voltage detected at alternator or solar input	Check both alternator input voltage and solar input voltage
-	Quick flash	-	Quick flash	High voltage detected at solar input	Check solar input voltage
-	-	Quick flash	Quick flash	High voltage detected at output	Check auxillary battery voltage
-	-	-	Quick flash	Over temperature	Let the unit cool down, relocate charger to somewhere with better ventilation

iTECHBM500		
Fault Code	**Fault**	**Solution**
F1	Over voltage	Isolate the monitor for 60 seconds. Ensure the input voltage is below the overvoltage value applied in the SET1 interface.
F2	Under voltage	Isolate the monitor for 60 seconds. Ensure the input voltage is above the undervoltage value applied in the SET2 interface.
F3	Over current	Isolate the monitor for 60 seconds. Ensure the current does not exceed the overcurrent value applied in SET3.

SAFETY PRECAUTIONS

For safe operation and optimal performance, the iTechworld Mini Power Core 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 electrician install the iTechworld Mini Power Core. 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:
The panels of the Mini Power Core must always remain closed with the screws tightened whilst charging a battery or powering a device.

WARNING:
Do not allow any metal objects to fall into the Mini Power Core or enter one of the ports.

WARNING:
Never insert anything other than a compatible adapter into any of the ports on the Mini Power Core.

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 device.

WARNING:
Do not drop your Mini Power Core.

WARNING:
Ensure the Mini Power Core does not come into contact with moisture. Failure to do so may lead to permanent damage to the internal electronics and will void the warranty.

WARNING:
Do not use your Mini Power Core to connect equipment if there is a defect.

WARNING:
Please select the correct battery charging profile applicable to your battery. Selecting the incorrect charging profile may damage your battery. If you are unsure of the correct battery charging profile to use, please contact your battery's manufacturer.

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

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

LIMITATIONS OF USE:
Do not use in connection with life support systems or other medical devices.

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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 poeple 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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Trustpilot