

USER GUIDE

POWER CORE

COMPLETE SYSTEM



iTECHWORLD
THE POWER EXPERT

CONTENTS

1.	Overview	3
	Key Features	3
	Package Contents	4
	Unit Diagram	5
	Sizing Guide	7
	LED Display	8
	Installation Accessories	8
	Wiring Diagram	9
2.	Installation	10
	Mounting	10
	Switch Wiring	10
	Circuit Breaker Wiring	10
	Battery Connection	14
	Charging Connections	16
	Inverter ATS Wiring	18
3.	Operation	20
	Battery Monitor & Setup	20
	Inverter Remote	21
4.	Specifications	22
5.	Troubleshooting	25
	Fault Codes	25
6.	Safety Precautions	27
7.	Contact Us	Back Page

OVERVIEW

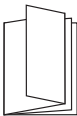
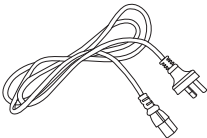
The iTechworld Power Core is a complete, pre-wired all-in-one system designed to deliver everything an advanced 12V installation needs, without the usual complexities. Engineered for reliability in harsh Australian conditions, it features thick copper wiring, heavy duty components, inside an industrial grade casing. Inside, you'll find a 2000W PRO inverter with ATS and RCD, 40A DCDC charger, 40A AC charger, and a 500A battery monitor and shunt.

Whether you're setting up a canopy, touring rig, or off grid system, the Power Core streamlines installation by centralising key components into one compact unit. It features multiple 50A Anderson outputs, USB/USB-C ports, and a 12V cigarette socket for accessory power, along with dedicated battery connection terminals and a built in circuit breaker interface for safe, organised power output.

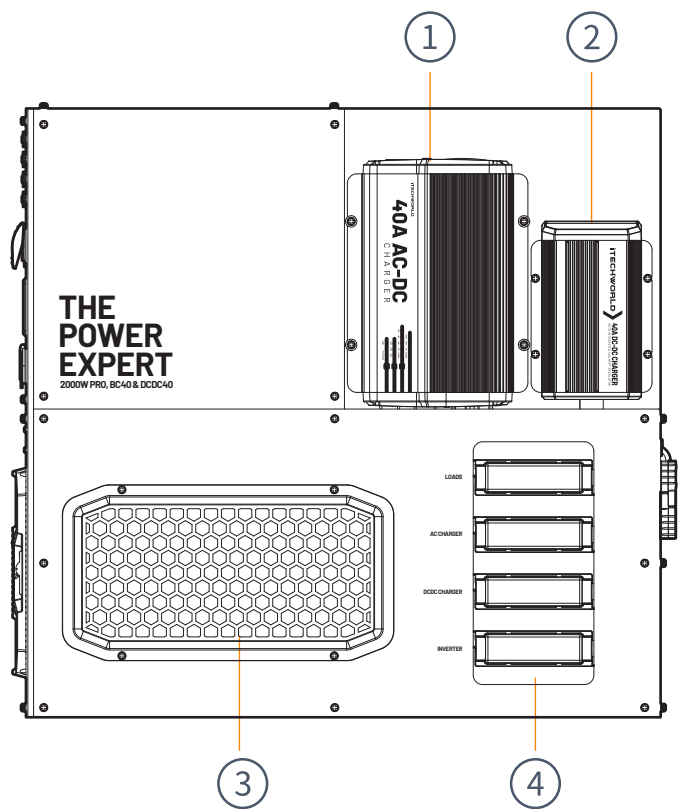
KEY FEATURES

- Built-in 2000W PRO inverter with ATS and RCD (iTECH2000WPRO)
- Built-in advanced battery monitor with 500A shunt (iTECHBM500)
- Built-in 40A ACDC charger (iTECHBC40)
- Built-in 40A DCDC charger (iTECHDCDC40)
- Pre-wired RCD and various fuses
- 12V 15A cigarette lighter output
- 2 x quick charge USB / USB-C outputs
- 2 x IN / OUT 50A Anderson plugs
- 4 x Backlit rocker switches
- Heavy gauge copper wiring
- 8 x Resettable circuit breakers
- Various output fuses

PACKAGE CONTENTS

 1 x Power Core	 User Guide	 35 x M4 Combination Screws 4 x M3 Tapping Screws
 12 x Spare ANL Fuses	 10 x Terminal Spades 20 x Terminal Rings	 iTECHBC40 AC Input Cable

UNIT DIAGRAM

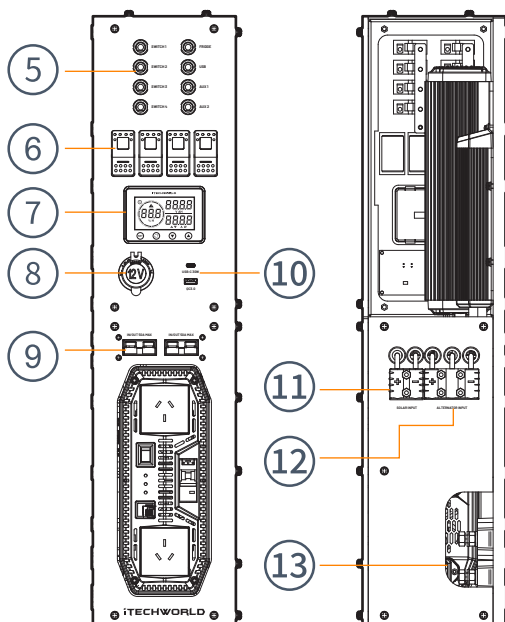


① iTECHBC40

③ iTECH2000WPRO

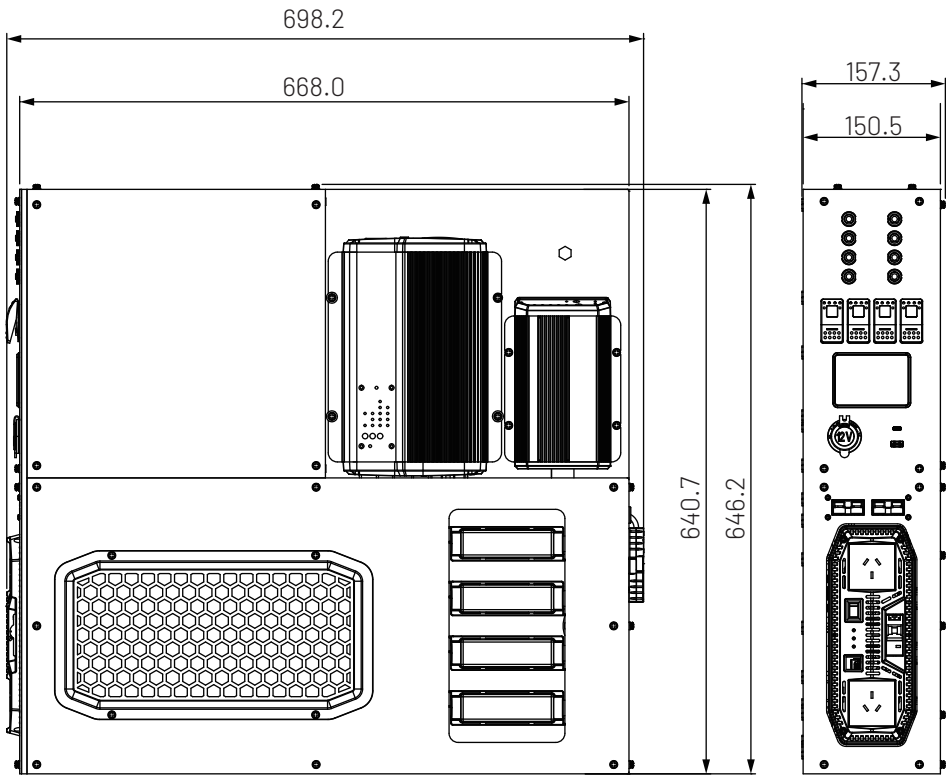
② iTECHDCDC40

④ EASY ACCESS FUSE PANEL

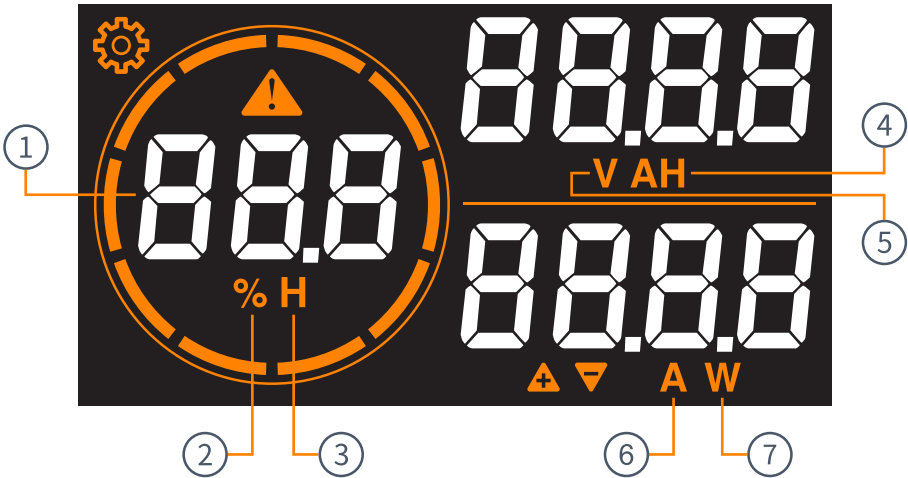


- | | |
|------------------------------------|--------------------------------|
| ⑤ CIRCUIT BREAKER INTERFACE | ⑩ USB / USB-C OUTPUTS |
| ⑥ 4 X BACKLIT ROCKER SWITCHES | ⑪ DCDC SOLAR INPUT |
| ⑦ ADVANCED BATTERY MONITOR | ⑫ DCDC ALTERNATOR INPUT |
| ⑧ 12V 15A CIGARETTE LIGHTER OUTPUT | ⑬ BATTERY CONNECTION TERMINALS |
| ⑨ 2 X IN / OUT 50A ANDERSON PLUGS | |

SIZING GUIDE



LED DISPLAY



- ① STATE OF CHARGE
- ② PERCENTAGE
- ③ TIME REMAINING
- ④ Ah REMAINING

- ⑤ VOLTAGE
- ⑥ AMPERAGE
- ⑦ WATTAGE

INSTALLATION ACCESSORIES



RC3 PRO

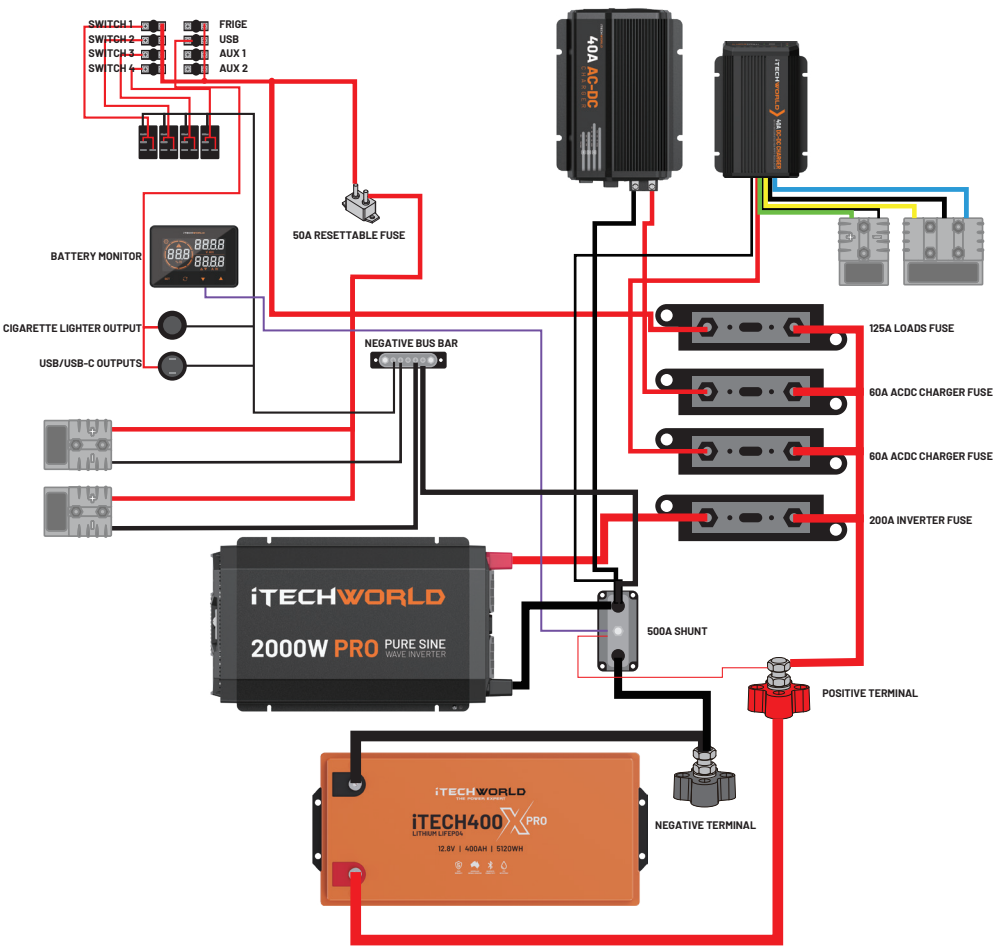


DCDC Install Kit

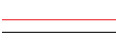


00AWG Inverter Cable

WIRING DIAGRAM



CABLE SIZES:

	70mm ²		8.4mm ²		Comms Cable
	50mm ²		2.1mm ²		
	21.2mm ²		0.3mm ²		

NOTES: 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

1. Mount the Power Core using the 40 included bolts, onto a flat, stable surface such as a canopy wall, vehicle frame, or wood backing panel. The unit must be installed in an upright orientation, away from moisture and excessive dust.
2. Ensure there is adequate clearance around the unit for wiring terminals, DCDC charger inputs, and fuse access. We recommend a minimum of 100mm clearance on the DCDC charger input side and near the fuse access panel.

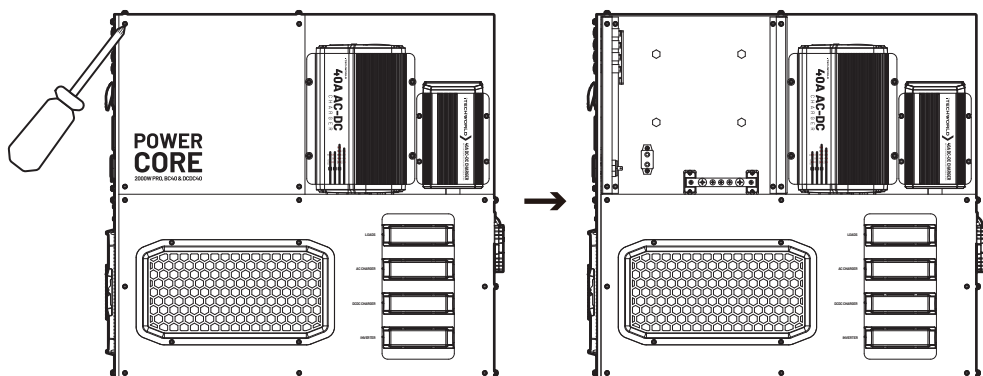
NOTE: If installing the Power Core into a high vibration environment, use nylon washers or rubber grommets to help reduce vibration.

APPLIANCE WIRING

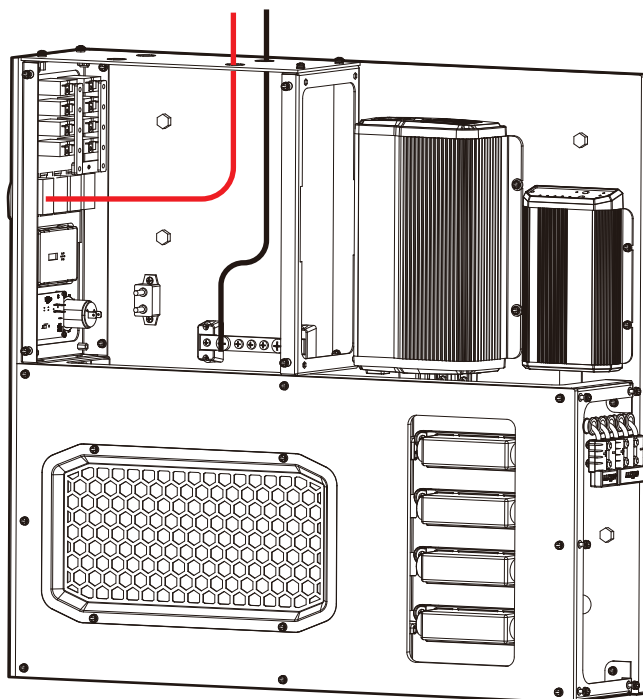
WARNING: Disconnect all battery power before beginning any wiring.

1. Remove the 4 screws and lift the upper panel of the Power Core to access the appliance wiring terminals.

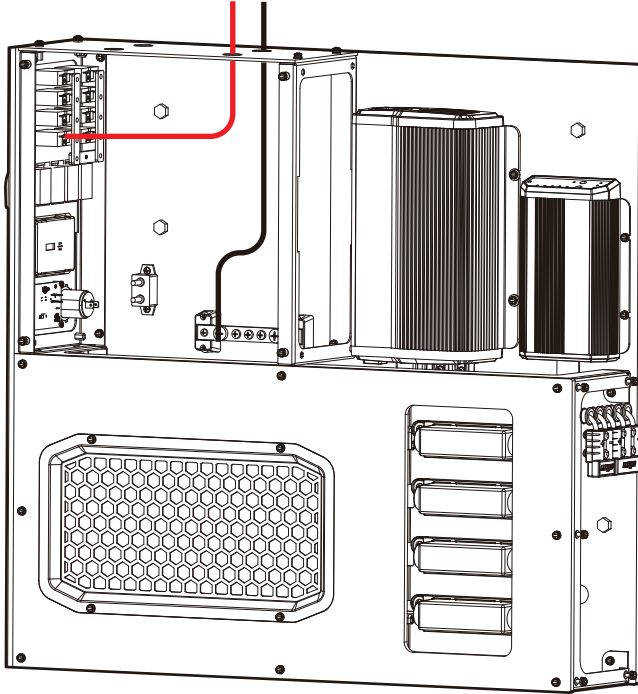
CAUTION: The lid is made from acrylic, take care when opening and re-installing to avoid shattering it.



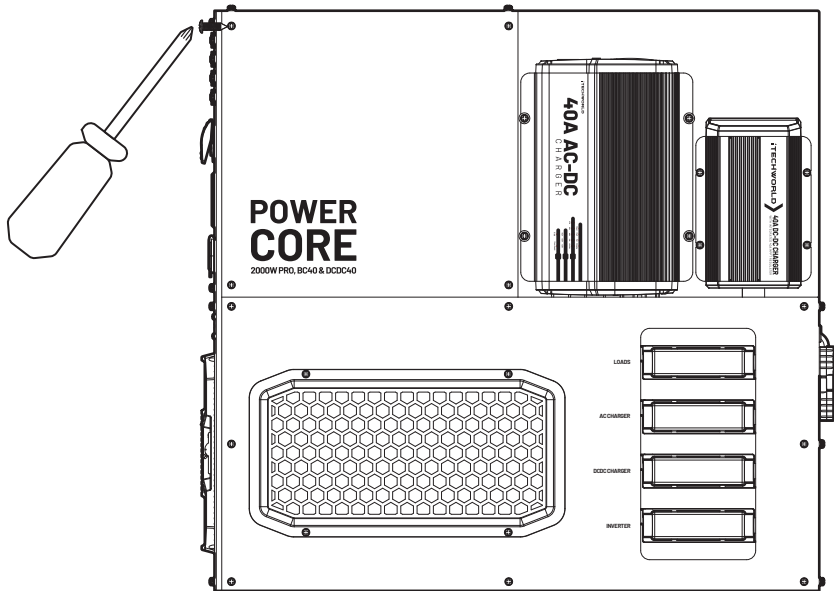
2. For appliances that require a switch to turn on or off (e.g. lights, pumps), connect the positive spade terminal to the bottom blank tab of the desired switch, ensuring the max current of the appliance does not exceed the rating on the switch or circuit. Then connect the appliance's negative ring terminal to the negative bus bar as below.



3. For appliances that do not require switching (eg fridges), connect the positive ring terminal directly to the designated circuit breaker, ensuring the max current of the appliance does not exceed the rating on the circuit breaker. Then attach the negative ring terminal to the negative bus bar as below.

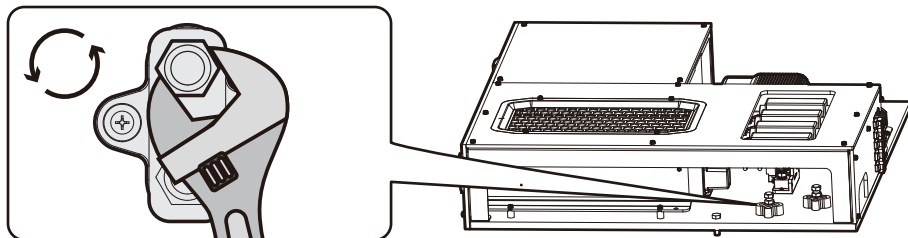


4. Organise the wiring within the Power Core. Ensure cables are not pinched, crushed, or routed across sharp edges. Carefully lower the upper panel back into place, ensuring it is properly aligned, and secure it ensuring not to over tighten.

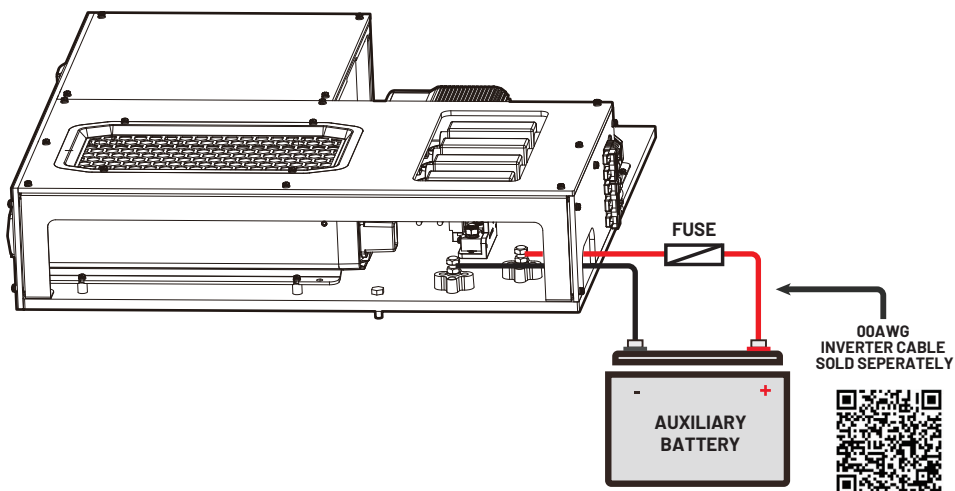


BATTERY CONNECTION

1. Remove the bolt and washer off both the positive and negative terminals on the lower portion of the Power Core.



2. Connect the negative cable of the auxiliary battery to the negative terminal of the Power Core, then attach the positive cable of the auxiliary battery to the positive terminal as shown below. Fasten the 2 bolts after the washer has been fitted, being sure not to over tighten.



NOTE: Ensure the cables are securely organised. Take care not to pinch, crush, or damage the cables during installation.

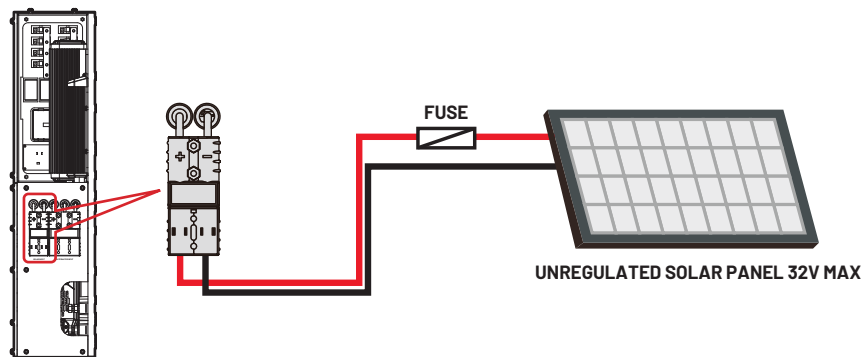
NOTE: When selecting a battery to pair with your Power Core, we recommend using a 300Ah battery or larger. The chosen battery must be within the specifications of the inbuilt iTECH2000WPRO Inverter. For more information and to view our 300Ah battery range, scan the QR code below.



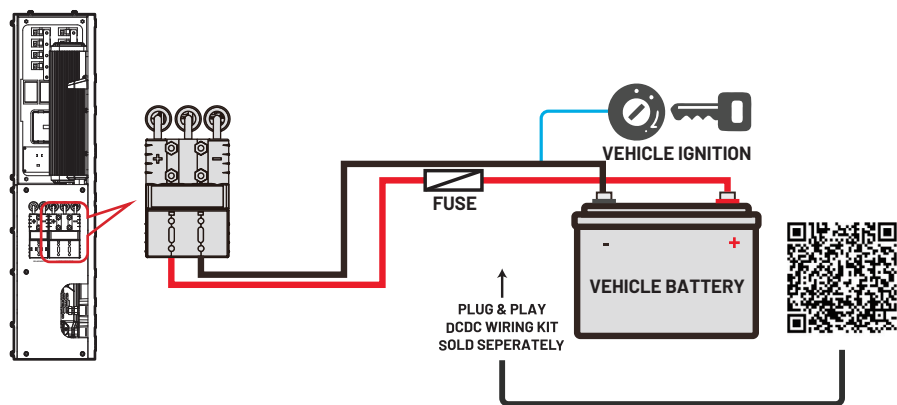
CHARGING CONNECTIONS:

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

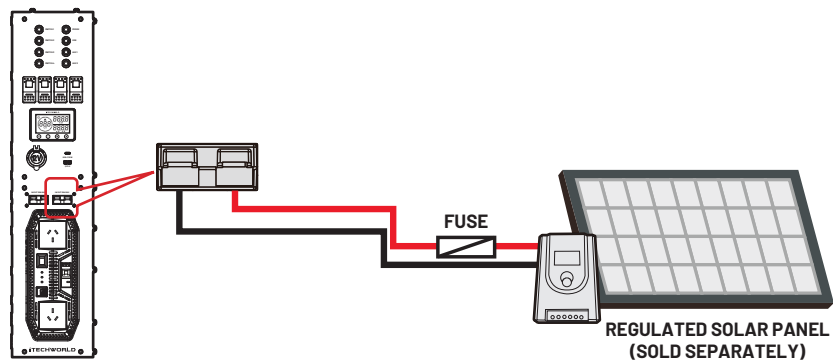
DCDC Solar Charging:



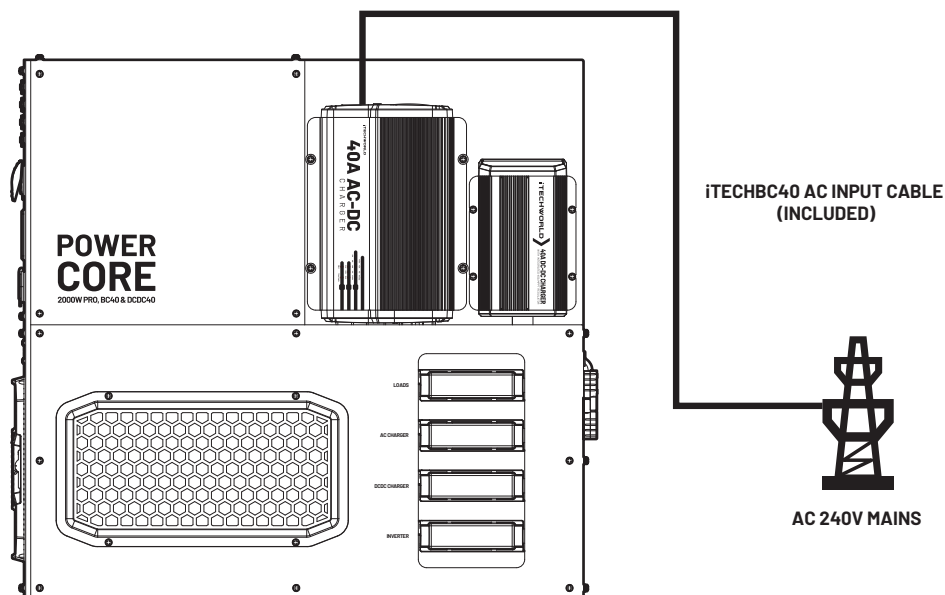
DCDC Alternator Charging:



Regulated Solar Charging:



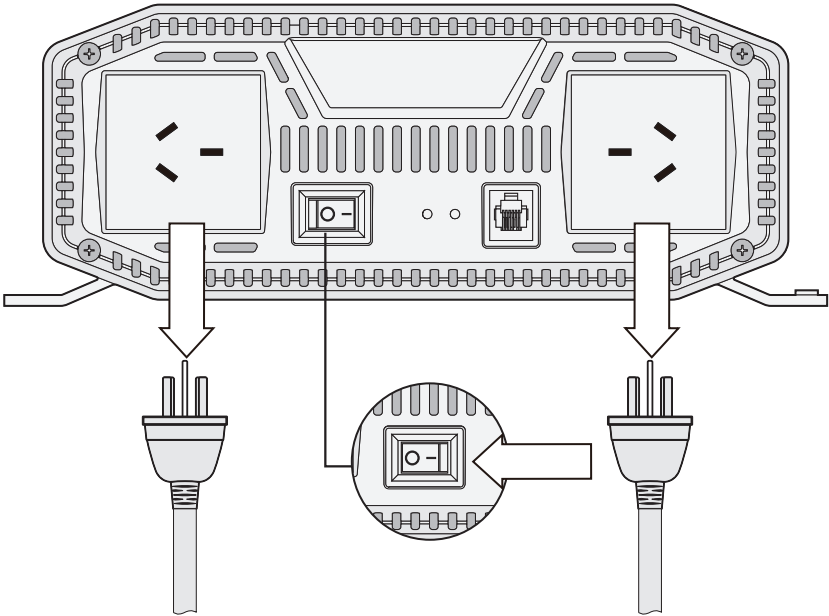
AC Charging:



INVERTER ATS WIRING

The ATS function enables the inverter to automatically switch from using 12V to AC 240V. It is beneficial for preserving your batteries and is used in situations where you opt to run your system from a powered site. Once the inverter detects incoming AC 240V current, the ATS function will activate, which will seamlessly switch the inverter input from 12V to AC 240V within 30ms.

Before installing the inverter into your system, ensure the unit is switched off and that there are no devices plugged into the AC 240V outputs.

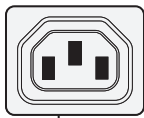


THIS STEP SHOULD BE COMPLETED BEFORE THE INSTALLATION SECTION.

Before connecting the AC input, ensure you have the following cables on hand.

AC INPUT CABLE	2000W PRO
INPUT END	IEC-C13
MAINS END	Type 1

IEC-C13



TYPE I SOCKET



Connecting the inverter to AC 240V is straight forward. Simply insert the IEC plug into the inverters AC input, and then insert the 3 - pin plug into an AC 240V socket or power point. The inverter is designed to automatically switch to AC 240V power when available, ensuring smooth operation.

 **We recommend this install is done by a licensed electrician.** 

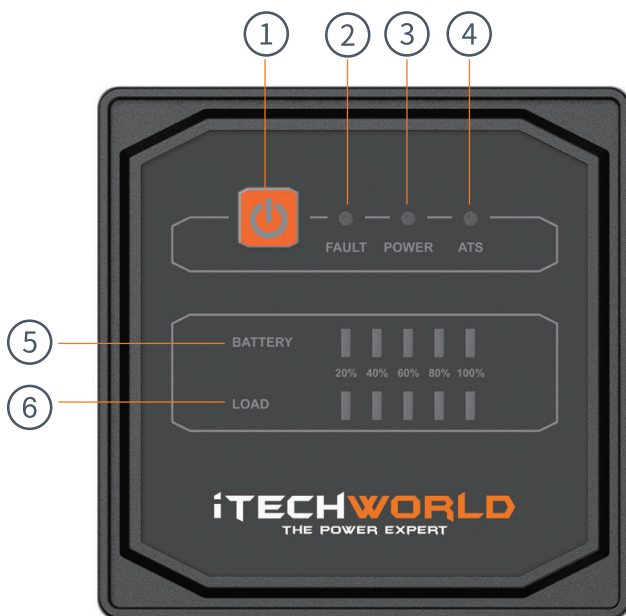
OPERATION

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 charge 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.

INVERTER REMOTE



The inverter remote provides you with the ability to control the inverter's basic features from a more convenient location. For the remote to function, the on/off switch on the inverter must be turned on.

- | | |
|--------------------------|---|
| ① POWER BUTTON | Press and hold for 3 seconds to turn the inverter on/off. |
| ② FAULT LED | Illuminated when the inverter encounters a fault. |
| ③ POWER LED | Illuminated when the inverter is on and flashes when inverter is off. |
| ④ ATS LED | Illuminated when the inverter is running from AC input. |
| ⑤ BATTERY VOLTAGE | The battery voltage is based on the DC input voltage. |
| ⑥ LOAD DISPLAY | The load display is based on the current inverter load. |

SPECIFICATIONS

General	
Dimensions (L x W x H)	660 x 131 x 641mm
Weight	21.8kg
Backlit Rocker Switches	4 x 20A
USB Output	18W
USB-C Output	30W
Cigarette Lighter Output	12V 15A
IN / OUT Anderson Plugs	2 x 50A
Battery Comptibility	Lead Acid, GEL, AGM, Calcium & Lithium LiFePO4

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	LiFePO4
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			<23.6V	
24V Smart Alternator (Ignition Cable Connected)	>24V			<23.6V	
Solar	>16V 2A			<15.8 1.5A	

iTECHBC40					
Input Voltage	220V - 240V				
Input Frequency	50Hz - 60Hz				
Max Input Current	4.8A				
Max Input Power	700W				
Standby Current	<2mA				
Output Rating					
Continuous Output Current	40A				
Selectable Battery Type	STD	GEL	AGM	Calcium	LiFeP04
Absorbtion Voltage	14.4V	14.1V	14.7V	15.5V	14.4V
Float Voltage	13.4V	13.5V	13.4V	13.6V	

iTECH2000WPRO	
Output Waveform	Pure Sine Wave
Input Voltage	10.5V - 15.5V
Max Input Current	156.3A
Standby Current	<1.3A
Harmonic Distortion	<3%
Efficiency	90%
Output Rating	
Continuous Output Power	2000W
Peak Output Power	4000W
Output Voltage	240V
Output Frequency	50Hz
Output Plug Rating	10A
ATS Rating	
Continuous Output Power	3600W
Voltage Requirement	220V - 240V
Transfer Time	30ms
Remote	
Port	RJ12
Dimensions (L x W x H)	86 x 86 x 19mm
RCD	
Tripping Current	20A

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

TROUBLESHOOTING

FAULT CODES

DCDC40					
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

BM500		
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.

BC40			
Fault LED	Fault	Reason	Solution
On	Charger is not outputting power	Reverse polarity	Disconnect the terminal wires and correctly reconnect them
		Short circuit	
		Poor connection	
		No AC input	Check the AC power source
		Over temperature	Disconnect the terminal wires and allow the charger to cool down
	Charger is not reaching the float stage	Battery fault	Check the charger on another battery
		Constant load	Lower, or disconnect the load connected to the battery
		Cable size	Use the supplied cables

2000W PRO		
Fault LED	Fault	Solution
Flashes once	Over / under voltage protection activated	Isolate the inverter for 60 seconds, ensure the input voltage is between 10.5V - 15.5V.
Flashes twice	Ac output short circuit detected	Isolate the inverter, inspect your appliance, then reconnect the appliance.
Flashes 3 times	Over / under temperature protection activated	Isolate the inverter, ensure the temperature is within -10°C and 50°C.
Flashes 4 times	Ac output overload detected	Isolate the inverter and ensure the total draw of your appliance/s does not exceed the rated maximum of the inverter.
Flashes 5 times	Internal fault detected	Isolate the inverter, then reconnect the appliance. If you are still experiencing issues, please contact the iTechworld service centre.

SAFETY PRECAUTIONS

For safe operation and optimal performance, the iTechworld Power Core Complete Syetem 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 iTechworld Power Core Complete Syetem. 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 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 Power Core or enter one of the ports.

WARNING:

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

WARNING:

Ensure the 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 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 battery 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 charge 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.

iTECHWORLD

THE POWER EXPERT

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.

LOVE YOUR POWER CORE? **LEAVE A REVIEW**

