USER GUIDE

iTECHDCDC60

INTELLIGENT BATTERY CHARGER

iTECHWORLD
THE POWER EXPERT

Ver 1.0

QUICK START GUIDE

Step 1.
Connect the Auxiliary Battery to the iTECHDCDC60 Output via an 80-amp fuse.

Step 2
Connect the Cranking Battery to the iTECHDCDC60 Input via an 80-amp fuse.

Step 3.
Connect the Solar Panels to the iTECHDCDC60 Solar Input via an 80-amp fuse.

Step 4.
Connect the ignition wire to an ignition-controlled power source.

Step 5.
Start the vehicle and verify that the iTECHDCDC60 is outputting power.

You will know the iTECHDCDC60 is outputting power when the battery type LED is solid and the alternator/solar LED is flashing.

CONTENTS

PRODUCT OVERVIEW

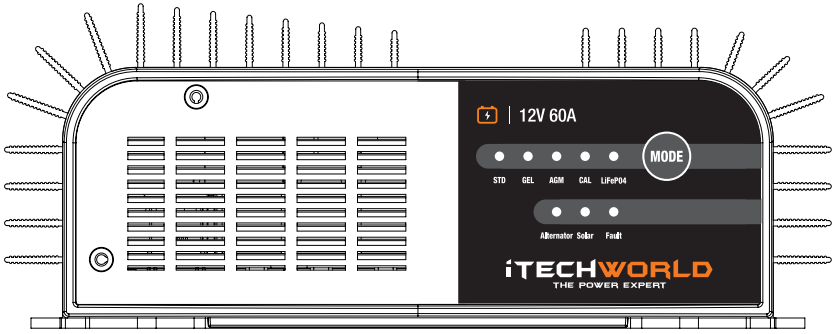
The iTECHDCDC60 charger is suitable for charging all common types of automotive or recreational 12-volt lead-acid batteries such as Standard Lead Acid, Gel, AGM, and Calcium, or LiFePO4 (Lithium Iron/Ferro Phosphate) Chemistry 12-Volt Lithium batteries. It can operate on both 12- and 24-volt alternators, as well as unregulated 12-volt nominal solar input. Notably, the iTECHDCDC60 features a Maximum Power Point Tracking (MPPT) solar regulator, which maximises power harvested from connected solar panels, thus increasing charging efficiency.

Designed with high efficiency in mind, the iTECHDCDC60 charger is compact and suitable for installations with limited space. Additionally, it is engineered to isolate the auxiliary battery from the cranking battery, preventing over-discharge of the cranking battery.

KEY FEATURES

- Suitable for charging all common types of automotive or recreational 12-Volt lead acid and LiFePO4 lithium batteries.
- 60A MPPT Solar Regulator
- Dual input from both solar and alternator
- Charging efficiency of up to 95%
- Excellent performance in harsh environments
- Smart alternator compatible
- In-built Low-Voltage, Over-Voltage, Over-Temperature and Reverse Polarity Protection
- Isolates the cranking battery from the auxiliary battery
- Automatically brings iTechworld lithium batteries out of safe mode

DISPLAY PANEL



BATTERY CHARGING PROFILE

To modify the battery charging profile, press the 'Mode' button for 1.5 seconds. As a result, the battery type indicator will move one LED to the right.

Please be aware that following any changes, there might be a delay of up to 2 minutes before the charger starts the charging process.

LED CHARGE INDICATOR

Alternator/Solar LED	Battery Type LED	Charging Stage
Short flash GREEN	Solid GREEN	Bulk or Absorption
Long flash GREEN	Solid GREEN	Float

UNIT OPERATION

When the iTECHDCDC60 is connected, all LED indicators will light up, this is normal operation, the charger is initialising and will take up to 2 minutes to start charging.

The iTECHDCDC60 will go into standby mode if the input voltages are below the turn off voltage, (please note the iTECHDCDC60 will continue to charge the auxiliary battery for up to 2 minutes before going into standby), this is indicated by the charge input and battery type indicator LEDs blinking momentarily at the same time, once charging voltages have risen above the cut in voltage, it will take up to 2 minutes for the charger to "wake" and begin to charge.

The iTECHDCDC60 will start to charge from solar input if the panel supply voltage is above 15V and outputting at least 30W (2 Amps).

iTECHDCDC60 Operation		
Input	**Turn On**	**Turn Off**
12V standard alternator	>13.2V	<12.8V
24V standard alternator	>26.2V	<25.6V
12V smart alternator	>12V	<11.8V
12V smart alternator	>24V	<23.6V

FAULT RESOLUTION

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

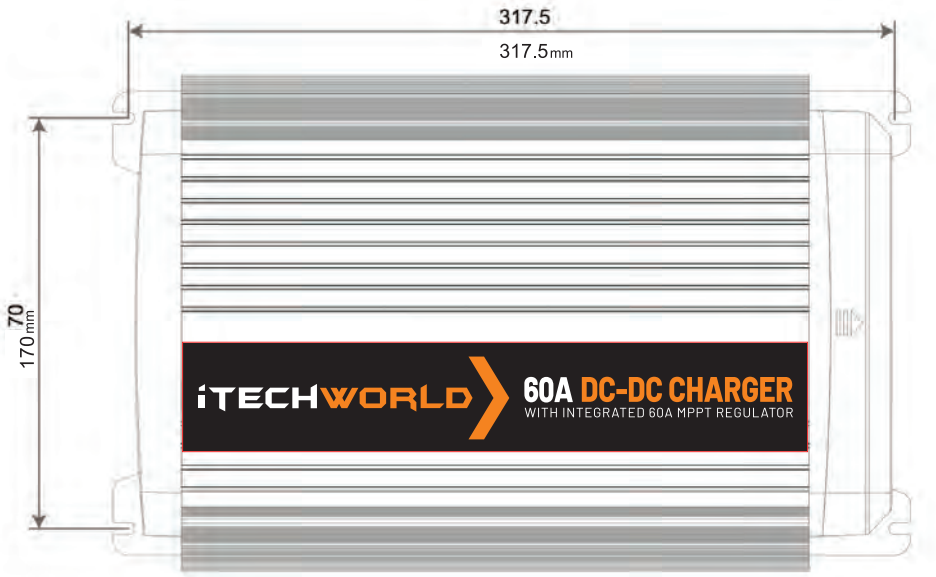
INSTALLATION

INSTALL LOCATION

The iTECHDCDC60 charger has been designed for installation in a variety of locations.

If the charger is to be installed in the vehicle cabin, please ensure there is adequate ventilation around the charger, and that it is not installed in an enclosed space where airflow is restricted. The temperature of the charger case can typically be 20-30 degrees Celsius above ambient temperature, it is normal for the charger to feel hot and for you to not be able to keep a finger on the surface for more than a couple of seconds as the case can exceed 60 degrees Celsius.

The iTECHDCDC60 charger should be installed as close as possible to the auxiliary battery, this allows for more efficient charging of your auxiliary battery. The iTECHDCDC60 can be mounted with 4 screws (not included), there are mounting brackets where the screws can be affixed.



SELECTION OF CABLE SIZE

For 12V input and output connections, it's advisable to use ring terminals. In general, using thicker wire sizes will enhance performance, while using thinner wires may diminish performance, particularly when they are too small for the application. When contemplating your wiring choices, prioritise thicker and shorter wire lengths to minimise resistance and voltage drop.

Input	Length		
Solar Positive Alternator Positive Output Positive Ground	0-3M	3-6M	6-9M
	16mm² (6AWG)	25mm² (4AWG)	25mm² (4AWG)
Ignition	0.5mm² (20AWG)	0.5mm² (20AWG)	0.5mm² (20AWG)

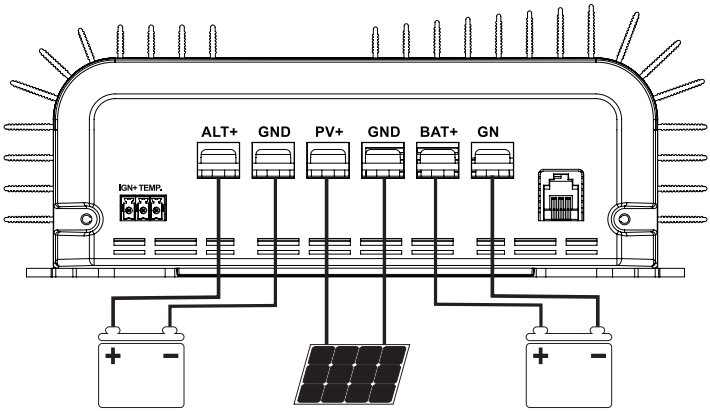
iTechworld strongly advises that a properly trained / qualified individual conducts this task. Failure to establish a secure connection could result in a short circuit, potentially leading to fire and property damage.

For wire extensions, it is advisable to utilise soldered butt splice connectors. This ensures minimal resistance in the connections. The optimal approach is to crimp both ends of the connector, followed by soldering both sides of the connector. Once the connection is secured, it is crucial to employ heat shrink tubing to protect the connections and prevent any potential short circuits.

Butt Splice Connector	Solid BN4 for 4 AWG	

WIRING

Before any connections are made during installation, please disconnect the main cranking battery to prevent any short circuits, please note down any radio anti-theft codes before the battery is disconnected.



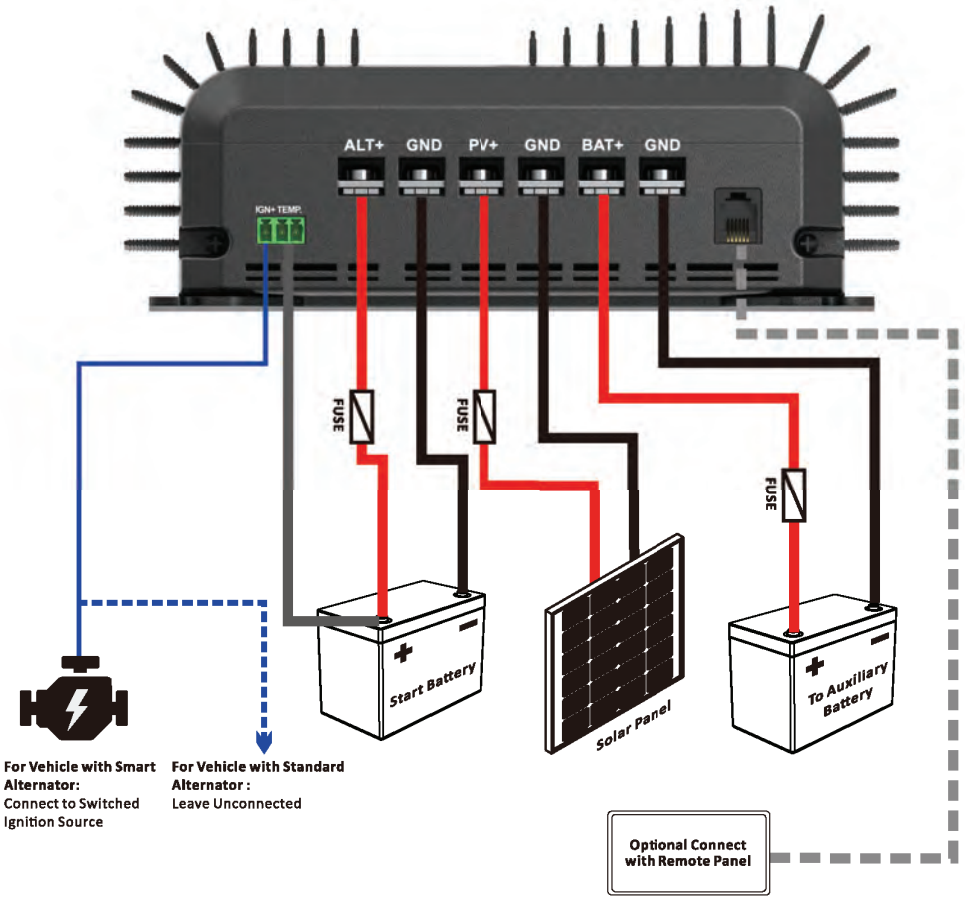
Output: connects to the battery being charged (the auxiliary battery). 1

Alternator Input: connects to the main cranking battery. 2

Solar Input: connects to an unregulated solar panel. 3

The ignition: connects to a switched ignition source (i.e., a point that supplies 12V only when the key is in the 'ON' position and disconnects when the key is in the 'OFF' position) this can be found by tapping into the vehicles accessory wiring or the vehicle's fuse box and a fuse tap can be used.

TYPICAL SETUP



TEMPERATURE SENSOR

The battery charger is equipped with a temperature sensor that we recommend installing on the positive terminal of the battery. This sensor automatically adjusts the charging voltage based on the battery's temperature, ensuring optimal charging performance. In colder temperatures, it increases the voltage for efficient charging, while in hotter conditions, it reduces the voltage to prevent overheating. This feature helps maintain the battery and extend its lifespan.

FUSE SPECIFICATIONS

It is essential to install all recommended fuses in series within the circuit. Bolt-down fuses are the preferred choice as they guarantee a low-resistance connection. In contrast, self-resetting circuit breakers are not recommended as they may trip prematurely due to the heat generated by the current flowing through the wires.

Source	Fuse Size
Charger input	80A
Charger output	80A
Solar input	80A
Ignition	3A

SPECIFICATIONS

General Rating					
Vehicle input voltage	9-32V				
Solar input voltage	10-48V				
Max input current	65A				
Input fuse rating	80A				
Continuous output current	Up to 60A				
Output fuse rating	80A				
Minimum aux battery charge start voltage	4V				
Standby current	<18mA				
Battery type	Standard lead acid, GEL, AGM, Calcium & LifePO4				
Operating temperature	-20°C to +80°C				
IP rating	IP20				
Weight	2.5kg				
Dimensions	205 x 331 x 39mm				
Battery capacity	100-1200Ah				
Output Rating					
Charge type	3-Stage				
Charging profile	STD	GEL	AGM	Calcium	LIFEPO4
Absorbtion (Maximum output voltage)	14.4V	14.1V	14.7V	15.3V	14.5V
Float voltage	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)	>12.0V	<11.8V
24V smart alternator (Ignition cable connected)	>24.0V	<23.6V
Solar	15V and 30W	10V

SAFETY PRECAUTIONS

For safe operation and optimal performance, the iTECHDCDC60 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 iTECHDCDC60 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 iTECHDCDC60

WARNING:
Do not use the iTECHDCDC60 and its accessories to connect equipment if there is a defect.

DANGER:
Do not disassemble or modify the charger; doing so may result in a risk of electrical shock, fire, death, or serious injury.

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

LIMITATIONS OF USE:
Do not use in connection 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

When it comes to energy storage and creation at iTechworld, we take pride in being one of the biggest names in the industry. Based in Australia, we are a family-owned and operated business. With many more innovative products on the horizon we are committed to constantly raising the bar to provide bigger and better benefits to all our customers Australia-wide.

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