USER GUIDE

iTECHDCDC25/40

INTELLIGENT BATTERY CHARGERS

iTECHWORLD
THE POWER EXPERT

Ver 1.0

QUICK START GUIDE

Step 1.
Connect the auxiliary battery to the iTECHDCDC charger output via a fuse.

Step 2
Connect the cranking battery to the iTECHDCDC charger input via a fuse.

Step 3.
Connect the solar panels to the iTECHDCDC charger solar input via a fuse.

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

Step 5.
Start the vehicle and verify that your iTECHDCDC charger is outputting power. You will know the iTECHDCDC is outputting power when the battery type LED is solid, and the alternator/solar LED is flashing.

Source	Fuse Size	
Model	DCDC25	DCDC40
Charger Input	40A	60A
Charger Output	40A	60A
Solar Input	40A	60A
Ignition	3A	3A

CONTENTS

1. Product Overview 4
   - Key Features 4
   - Package Contents 4
   - Display Panel 5
   - Battery Charging Profile 5
   - Solar Priority 5
   - LED Charge Indicator 6
   - Unit Operation 6
   - Fault Resolution 7

2. Installation 7
   - Install Location 7
   - Selection of Cable Size 8
   - Wiring 9
   - Typical Setup 10
   - Fuse Specifications 11

3. Specifications 12

4. Safety Precautions 13

5. Contact Us Back Page

PRODUCT OVERVIEW

iTECHDCDC chargers are suitable for charging all common types of automotive or recreational 12V batteries, such as standard lead acid, gel, AGM, calcium or LiFeP04 (Lithium iron/Ferro phosphate) chemistry lithium batteries. They can operate on both 12V and 24V alternators, as well as unregulated 12V nominal solar input. Notably, the iTECHDCDC charger range features a Maximum Power Point Tracking (MPPT) solar regulator, which maximises power harvested from connected solar panels, thus increasing charging efficiency.

Designed with this high efficiency in mind, iTECHDCDC chargers are compact and suitable for installations with limited space. They carry an IP67 dust and waterproof rating, meaning they are fully protected from the elements. Additionally, they are engineered to isolate the auxiliary battery from the cranking battery, preventing over-discharge of the cranking battery.

KEY FEATURES

- Suitable for charging common types of automotive or recreational 12V lead acid and LiFeP04 lithium batteries.
- 40A or 25A MPPT Solar Regulator.
- Dual input from both solar and alternator.
- Charging efficiency of up to 95%.
- Excellent performance in harsh environments.
- Smart alternator compatible.
- Inbuilt 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.
- IP67 rated waterproof.

Package Contents

 iTECHDCDC25 or 40	 Colour Coded Anderson Plugs (3 are pre-installed)	 User Guide

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 may be a delay of 2 minutes before the charger starts the charging process.

SOLAR PRIORITY

The iTECHDCDC40 and iTECHDCDC25 are set up with alternator priority as default, as the power from solar can be very unstable, which thus affects charge efficiency. If you prefer solar charging regardless of its charging efficiency, or your auxiliary battery has a small load connected and you want to use solar charging as much as possible, you can enable the "Solar Priority" function. The iTECHDCDC charger will now always select input power from the grey Anderson (solar) if the solar input is above the minimum required power. Please note it may take up to 2 minutes after any changes for the charger to begin charging.

To turn "Solar Priority" ON, please press and hold the "Solar Priority" button for 1.5 seconds, then release – the indicator will turn on.

To turn "Solar Priority" OFF, please press and hold the "Solar Priority" button for 1.5 seconds, then release – the indicator will turn off.

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 an iTECHDCDC charger 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 iTECHDCDC charger will go into standby mode if the input voltages are below the turn off voltage (please note your iTECHDCDC charger 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 iTECHDCDC charger will start to charge from solar input if the panel supply voltage is above 16V and outputting at least 25W (1.5 Amps).

iTECHDCDC25/40 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

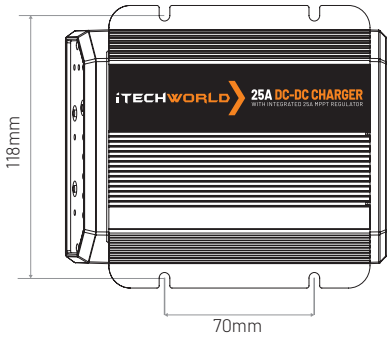
INSTALL LOCATION

iTECHDCDC chargers have been designed for installation in a variety of locations – they are specifically designed, suited and warranted for under-the-bonnet installation.

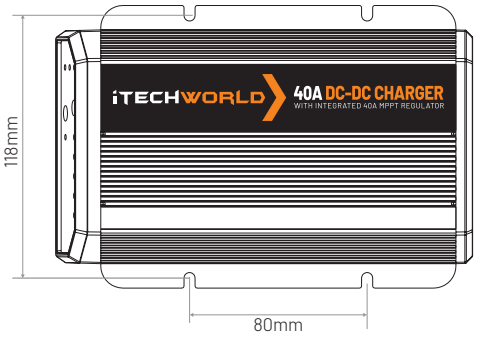
If the charger is to be installed in the vehicle cabin, please ensure there is adequate ventilation around the charger, and that it is not installed in an enclosed space where airflow is restricted. The temperature of the charger case can typically be 20-30°C above ambient temperature – it is normal 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°C.

Your iTECHDCDC charger should be installed as close as possible to the auxiliary battery, as this allows for more efficient charging. The iTECHDCDC chargers can be mounted with 4 screws (not included) into the mounting brackets.

iTECHDCDC25



iTECHDCDC40



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, whilst using thinner wires may diminish performance, particularly where 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	
	DCDC25 6mm² (10AWG)	**DCDC40** 10mm² (8AWG)	**DCDC25** 10mm² (8AWG)	**DCDC40** 16mm² (6AWG)	**DCDC25** 16mm² (6AWG)	**DCDC40** 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 short circuits.

Butt Splice Connector	BN8 for 8 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.

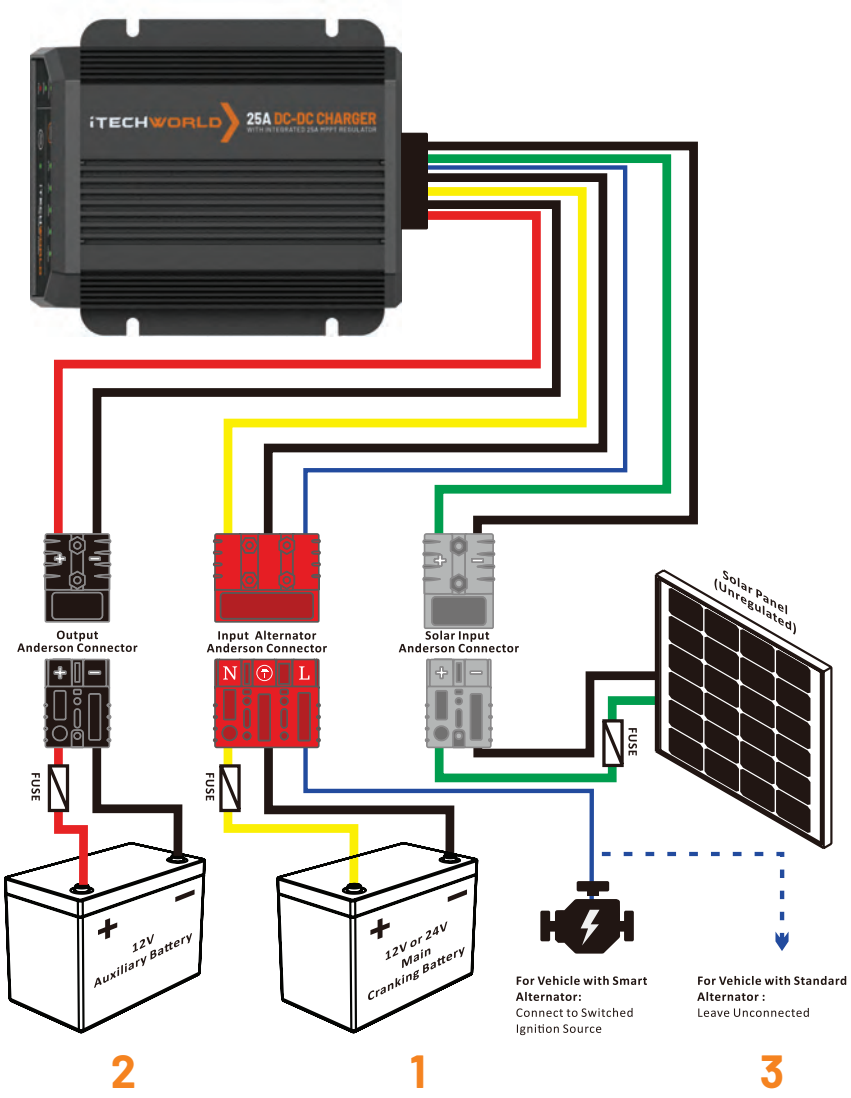
Alternator Input (Red Anderson): Connects to the main cranking battery.

Charger Output (Black Anderson): connects to the battery being charged (the auxiliary battery).

Solar Input (Grey Anderson): Connects to an unregulated solar panel.

The ignition: If you have a smart alternator, the blue wire connects to a switched ignition source. This can be found by tapping into the vehicle's accessory wiring or the fuse box, where a fuse tap can be used. If you have a standard alternator, it is advisable to keep the ignition wire disconnected.

TYPICAL SETUP



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	
Model	**DCDC25**	**DCDC40**
Charger input	40A	60A
Charger output	40A	60A
Solar input	40A	60A
Ignition	3A	3A

SPECIFICATIONS

General Rating					
Model	**iTECHDCDC25**		**iTECHDCDC40**		
Vehicle input voltage	9V - 32V				
Solar input voltage	10V - 32V				
Max input current	25A		45A		
Input fuse rating	40A		60A		
Continuous output current	Up to 25A		Up to 40A		
Output fuse rating	40A		60A		
Minimum aux battery charge start voltage	4V				
Standby current	<10mA				
Battery type	Standard lead acid, GEL, AGM, Calcium & LifePO4				
Operating temperature	-20°C to 80°C				
IP rating	IP67				
Weight	670g		950g		
Dimensions	150 x 127 x 39mm		188 x 127 x 39mm		
Battery capacity	50-500Ah		80-800Ah		
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)	>12V		<11.8V		
24V smart alternator (ignition cable connected)	>24V		<23.6V		
Solar	16V and 25W		10V		

SAFETY PRECAUTIONS

For safe operation and optimal performance, iTECHDCDC battery chargers 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 your iTECHDCDC 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:
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 fire. If you are unsure of the correct battery charging profile to use, please consult 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 the maximum charging voltage of your battery, please consult your battery's manufacturer.

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

WARNING:
Ensure 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 rate, 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 your iTECHDCDC charger.

WARNING:
Do not use your iTECHDCDC charger and its accessories to connect equipment if there is a defect.

DANGER:
This device is only suitable for battery types listed in the user guide. Do not use it for other purposes.

DANGER:
Do not disassemble or modify the charger; 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/ devices.

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