
CCPWM60A - Installation Manual

HHO Hydrogen on Demand Dual Fuel Generator Systems



CONTENTS

1	Disclaimer	3
2	Safety Precautions	3
3	Parts List	3
4	Technical Specifications	4
5	Pulse Width modulation	5
6	Main Features	5
7	Electrical Connections	5
8	Front Panel	7
9	Configuration Panel. Setting the values	7
10	Water Level Sensor	9



1 Disclaimer

When purchasing this device, you are held responsible for any damage that may occur during installation or operation of this device. The manufacturer or seller are not held liable and hold no responsibility for any personal harm or property damage. Thank you for purchasing our CCPWM60A Constant Current Automatic Power Device. Please read contents carefully in order to understand the installing and operation procedures before getting started.

2 Safety Precautions

Read and follow these safety precautions to avoid hazards. If you do not understand these instructions or do not like to work on vehicles, please have a qualified mechanic do the installation for you. Incorrectly installing or using the CCPWM60A and/or the HHO System may result in serious damage to you and/or your vehicle.

It should take approximately half an hour to install this unit, so ensure that you have enough time to complete the installation. Be sure to work outside, no smoking at any time during the installation; make sure the engine is off and very importantly, not hot.

Your HHO System do not store hydrogen, subsequently there is no fire hazard when installed properly. However water electrolysis generates Hydrogen, an explosive gas, which means that you should **never light a match or smoke near or in front of the generators output** - the water tank could blow up!

Be careful with the generator working when the car is not moving. A small amount of hydrogen can accumulate in the air intake of the motor and could explode if you smoke or use an open flame near it.

Be sure to wear goggles and rubber gloves and only use professional tools; use common sense and general safety procedures used for any work carried out on automotive installations and maintenance.

3 Parts List

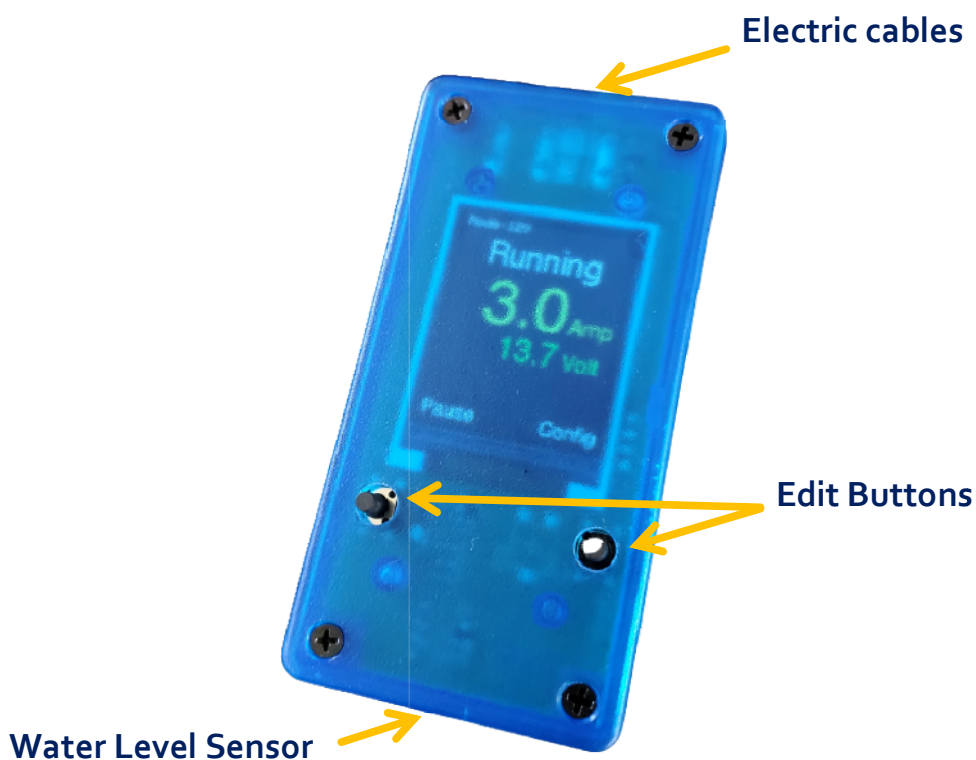
The CCPWM60A package includes the following items:

- 1 CCPWM60A Constant Current Automatic Power Switch Detection;
- 3 Yellow Female Spade Connectors.



4 Technical Specifications

- Direct connection from Battery and Input to HHO CELL generator, without external relays;
- 60A Max Powersupply;
- LCD Module Monochrome Display Screen: Voltmeter + Ammeter + Cell Charge information;
- Automatic detection of battery voltage and auto configuration for: +12V/+24V power supply;
- Quad operational chip sensor with 1% tolerance Zenner voltage detector;
- Auto power ON when the Engine is running;
- 3 Seconds delay PWM control, after Engine ON is detected;
- Auto Power OFF when Engine is turned OFF;
- Soft PWM startup to the max Ampere out power supply;
- Embedded trimmer for PWM control: from 0% to 100% HHO CELL power supply;
- Logical IC sensor, MUST be powered with 2 wires DIRECT from the battery;
- Embedded 3 way power barrier: Positive, Ground, Negative from Cell (CELL – OUT);
- Optional Water tank sensor switch embedded on system;
- Frequency: 36kHz





5 Pulse Width modulation

Pulse Width Modulation is a method of transmitting information on a series of pulses, changing the frequency, rather than a continuously varying analog signal. It will allow you to control the amperage going into the generator in a very easy way. This ability keeps the cell running at cool operating temperatures and prolongs the life of the cell while increasing the HHO output

Efficiency: HHO generators will run cooler than standard linear power amps, requiring substantially less heat sink mass;

Amperage control: the control of the amperage going into the generator will be very easy to control. The ability to control the amperage keeps the cell running at cool operating temperatures and prolongs the life of the cell while increasing the HHO output.

6 Main Features

NEW TECHNOLOGY: The CCPWM60A (Constant Current Pulse Width Modulator) will allow you to have always the same amperage and HHO production regardless the electrolyte concentration, water temperature or water levels. The CCPWM is the best solution for the professional market because there will be no possibility of error. We can put more or less electrolyte and the amperage and HHO production will always be the same.

The CCPWM60A is also designed for making the automatic power supply of the HHO System without the need for relays or picking up the signal from the alternator/ignition key, making the system safer to use and easier to install. In general the new CCPWM60A will work based on the voltage of the car:

- **Engine is stopped – voltage in car is below 12,8V – PWM is not working;**
- **Engine is working – voltage in car is above 13V – PWM is working.**

The CCPWM60A auto-detect when the car engine is running and automatically switches ON the HHO System, without any additional requirements. The device will automatically power OFF when the car engine is turned OFF or not running.

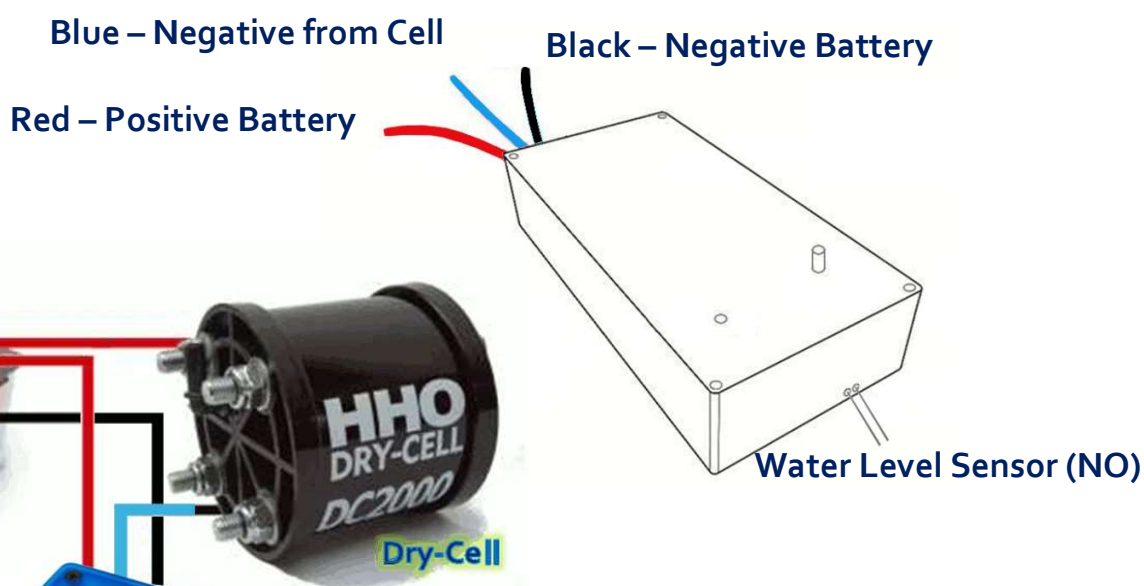
The CCPWM is also capable to control a water level sensor inserted in the water tank turning the system OFF when the level drops from a certain point.

7 Electrical Connections

1. Make sure your engine is not running during installation;
2. Mount the product as near of the battery as possible (maximum 3 meters), providing that it is well fixed. Please do not mount it over the battery;
3. In the back of the CCPWM60A there is a sticker to help you with the connections:

- a. Connect the **BATTERY -** to the negative terminal of the battery;
 - b. Connect the **BATTERY +** to the positive terminal of the battery;
 - c. Connect the **CELL-OUT** - thenegative cable coming fromtheHHO Cell.
4. Only use 6mm sectioncableinyourinstallation. Use the Yellow Female spade Connectors and plug the cables in the male pins according to the previous picture.

Please refer to the illustrations below for typical configuration of the electrical connections of the CCPWM60A:



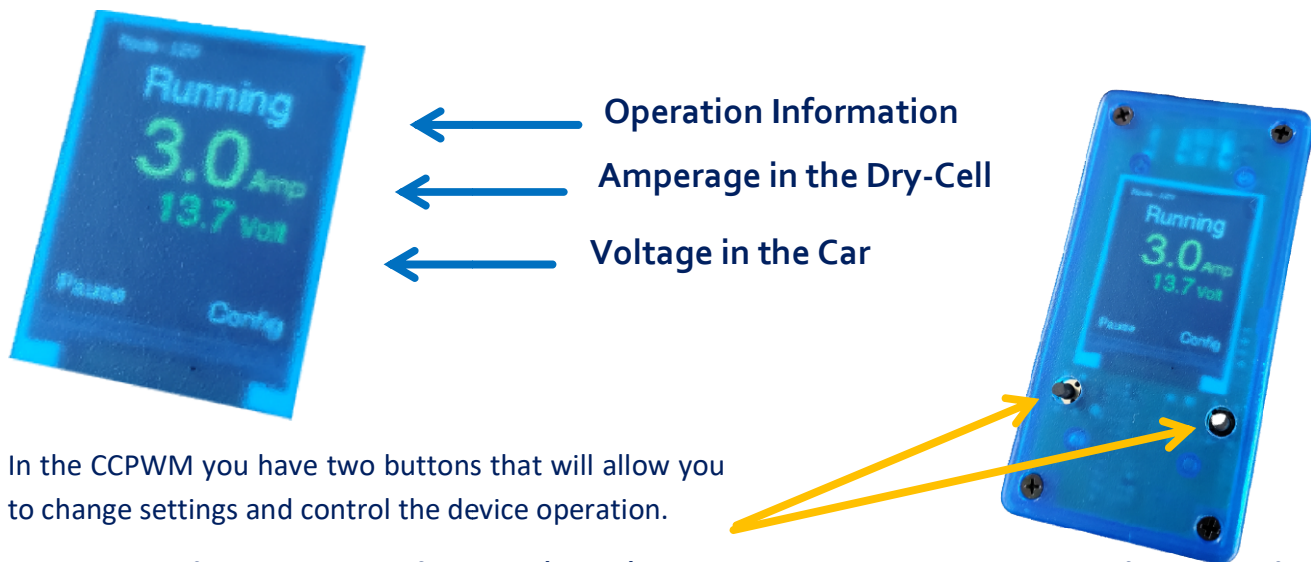
In the back of the CCPWM60A there is a sticker to help you with the connections:





8 Front Panel

When you connect the CCPWM60A you will have the following information displayed:



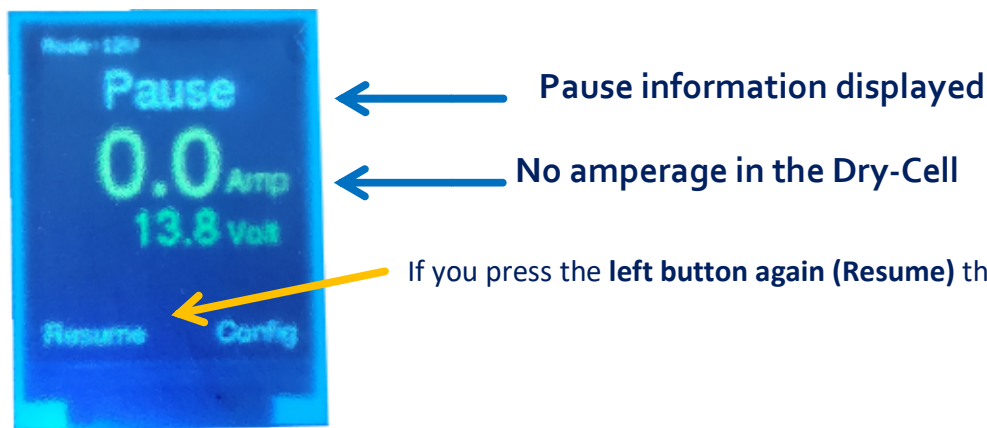
← Operation Information

← Amperage in the Dry-Cell

← Voltage in the Car

In the CCPWM you have two buttons that will allow you to change settings and control the device operation.

For example: if you press the **left button (Pause)** then the CCPWM will pause and the following information will be presented:



← Pause information displayed

← No amperage in the Dry-Cell

If you press the **left button again (Resume)** then the CCPWM will restart.

9 Configuration Panel. Setting the values

If you press the **right button (Config)** you will enter the configuration display where you can change the operating values.



Amperage

The **Maximum Current Panel** will appear for you to set the amperage value you wish to work:

Minimum 1 A / Maximum 60A

1. If you press the **left button (Edit)** you will enter the editing mode. A yellow cursor will appear marking the editing value;
2. Use the **left button (UP)** again to move up the value;
3. Press the **right button (Next)** to change the yellow cursor position;
4. Repeat points 2. And 3. to continue editing. After, in the **right button, Exit/Save** will appear:
 - a. If you make one single click on the **right button** you will exit configuration panel (Exit);
 - b. If you click and hold right button for 3 seconds you will **Save** your configuration. A message **Saved** will appear.
5. Press **right button (Next)** to move to **Maximum Voltage Panel**



Maximum Voltage



The **Maximum Voltage Panel** will appear in order for you to set the higher voltage value you wish to work. The maximum value allowed is 15,5V. For security reasons (ex: charging the battery with an external power supply), if the voltage in the car is higher than the value selected then the CCPWM60A will stop working and an alarm will appear.

To set this value just proceed in the same way as explained for the setting the amperage.

5. Press **right button (Next)** to move to **Minimum Voltage Panel**

For security reasons (ex: charging the battery) above 15,5V the CCPWM will not work and a **blue light** will appear.

Minimum Voltage

The CCPWM60A is designed for making the automatic power supply of the HHO System without the need for relays or picking up the signal from the alternator/ignition key, making the system safer to use and easier to install. In general the new CCPWM60A will work based on the voltage of the car:

- Engine is stopped – voltage in car is below 12,8V PWM =>is not working;
- Engine is working – voltage in car is above 13VPWM =>is working.



The CCPWM will only work when the real car voltage value is between the minimum and the maximum working voltage value.

The CCPWM60A will shut down completely if the voltage drops below 12,8V. If the voltage in the car is lower than the value selected then the CCPWM60A will stop working and an alarm will appear.

To set this value just proceed in the same way as explained for the setting the amperage.

IMPORTANT: After having selected your voltage working limits you should test it to check if it works correctly in your car. Stop engine and check if the CCPWM shuts down. Start engine and check if CCPWM turns ON.

10 Water Level Sensor

The water level should be placed in a way that, when the water level is above the minimum value, the signal coming from the CCPWM does not return to the CCPWM. That is, the water level circuit should operate as normally open (NO). Using our company models, the water level sensor should be placed up (please check last picture on this manual).

If you are not using a water level sensor in your system, no operation is required.

If the water level drops below the minimum level then the CCPWM will not work and a **red light** will appear





Reseller in Greece:



VAT Id. Number: 801590498

Headquarters:

1KLM Lagkadas-Thessaloniki, Greece
PC: 57200

Email: info@smart-cover.gr

Telephone: +30 2394020077