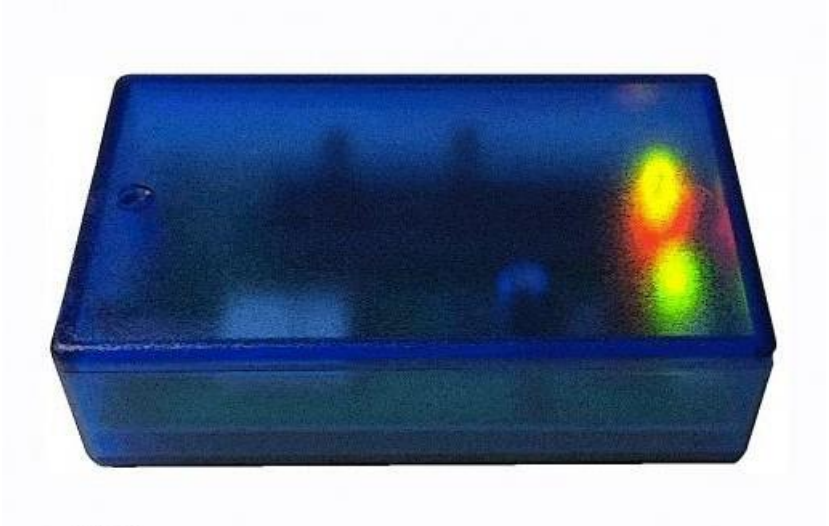
Installation and Operation Manual



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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 holds no responsibility for any personal harm or property damage. Thank you for purchasing the HEC Chip - Dynamic Soft-Flash Performance Chip. Please read the contents below carefully in order to understand the installing and operation procedures before getting started.

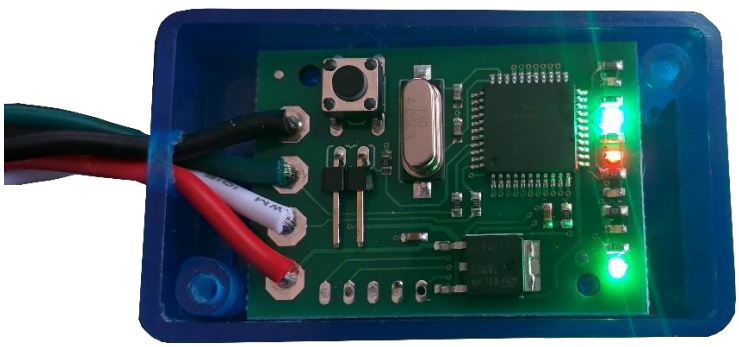
Safety precautions

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 HEC Chip and/or the HHO System may result in serious damage to you and/or your vehicle. It should take approximately 20 minutes to install this device, so ensure that you have enough time to complete the installation. Be sure to work outside and make sure the engine is off. 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.

Parts list

The HEC Chip package includes the following items :

- 1 Dynamic Soft-Flash Performance Chip with 4 wires for connection
- 4 Red Scotchlock Terminals.



Installation

Thank you for purchasing the HHO EFIE Chip. Please take the time to read through this manual to understand the installation and operation procedures before getting started. The Dynamic Soft-Flash Performance/Fuel Chip is a new concept developed by the HHO Plus Team, and is not offered anywhere else. It works by dynamically changing the values in the ECU. Each HEC Chip comes pre-programmed with a set of EPROM addresses that directly affect efficiency and performance. When the ECU attempts to read the specific EPROM address, the HEC Chip patches the factory value with one from its on-board performance tuned map, allowing you to unleash your engine's full potential.

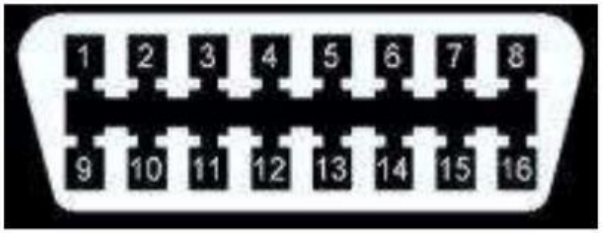
Locating the OBD-II Port

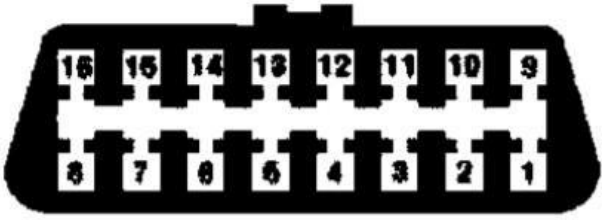
On-board diagnostics, or OBD, is an automotive term referring to a vehicle's self-diagnostic and reporting capability. OBD systems give the vehicle owner or a repair technician access to state of health information for various vehicle sub-systems. Start by locating your OBD II Port. If you don't know where it is, go to **http://www.obdclearinghouse.com/index.php?body=oemdb** and enter your year, make, and model. Normally the OBD II Port is located in the compartment located underneath the steering wheel:



Populated pins in the OBD-II Port

The OBD-II Port has 16 pins arranged in a numerical order. Please refer to the illustrations below for typical configuration of the OBD-II pins according to the position of the port in the car:





As you can verify the numeration is exactly the same whatever is the position of the port. Use a paper to write down the pin numbers populated in the OBD-II port. Look at the example below:



The populated pins are: 1, 4, 5, 7, 11, 13 and 16 If you are not sure, take out the OBD-II port and check the wires connected on the back.

Protocol verification and wire connections

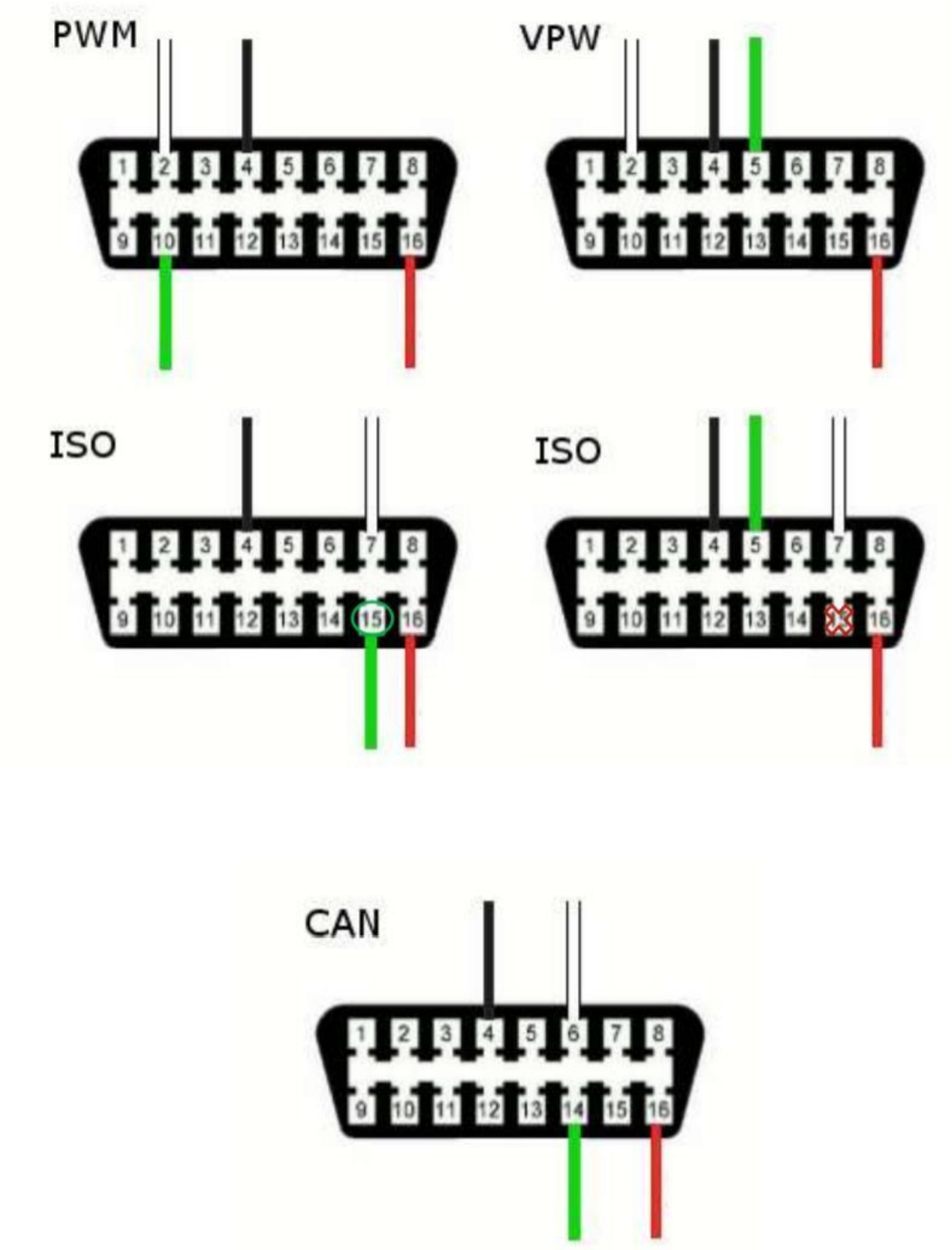
The 4 wires of the HEC Chip will connect to the wires on the back of the OBD-II port. The Red wire will always connect to the wire coming from pin 16 (+12V Power) and the Black wire will always connect to the wire coming from pin 4 (Ground). The Green and White wires will be connected according to the protocol in your car:

PWM - If pins 2 and 10 are populated, then connect White to pin 2, and Green to pin 10.

VPW - If pin 2, but not pin 10 is populated, then connect White to pin 2, and Green to pin 5.

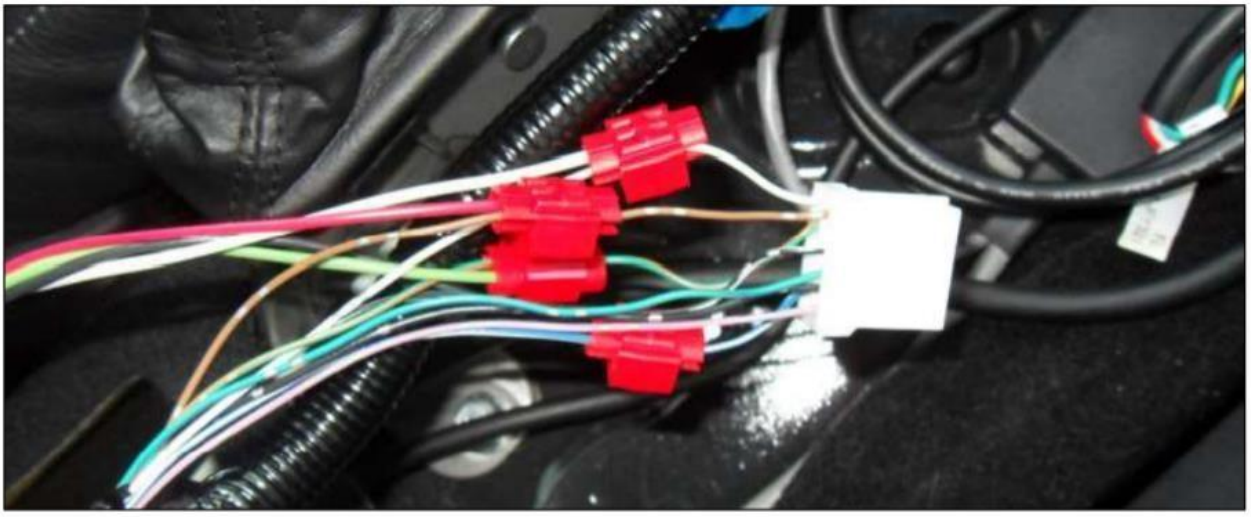
ISO - If pin 7 is populated, then connect White to pin 7. Connect Green to pin 15 if populated or pin 5 if not.

CAN - If pins 6 and 14 are populated, then connect White to pin 6, and Green to pin 14.


PWM
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
VPW
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
ISO
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
ISO
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
CAN
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16

Making the wire connections

Open the blue box and use the Red Scotchlocks Terminals to make the wire connections to the cables, in the back of the OBD-II port, coming from the pins selected according to the protocol in your car.



Calibration

Initial Calibration

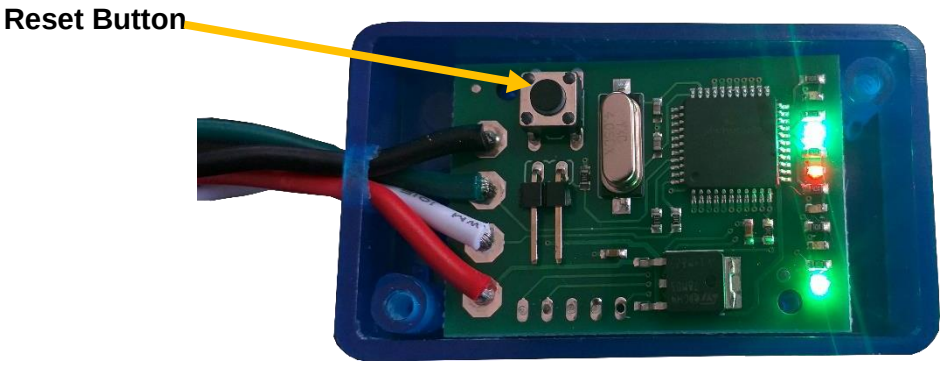
After installing for the first time, start the car's engine. The HEC Chip will determine which protocol you have and calibrate its on-board map and communication baud rates. This calibration should take around 1-3 minutes, depending on the vehicle**. During calibration the LINK LED will flash rapidly. Once the LINK LED becomes solid green, then calibration is complete.** Do not drive or accelerate the engine during calibration. Allow engine to idle until calibration complete. In addition to calibration, most vehicles will require around 150 kms adjustment period for maximum gains.

Recalibrating

In the event you make any changes to your vehicle you must reset the Chip for optimum gains. If you feel the chip is no longer functioning properly, a reset will return it to normal. Changes include anything that affects engine performance or efficiency, such as new engine components, or replacing defective parts.

Resetting

Turn the vehicle off. Open the blue case and press button inside the chip. Both LEDs will come on, then the RED LED may flash up to 20 times, then the Chip will enter Standby Mode. The Chip will now recalibrate the next time the vehicle is started.



LED states

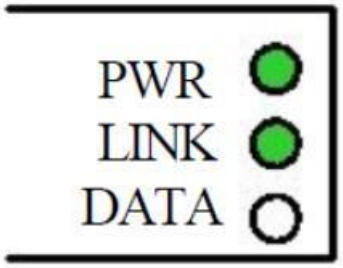
The HEC Chip has 3 information LEDs. They will provide you all the information necessary regarding the performance of the chip.



Stand-by Mode

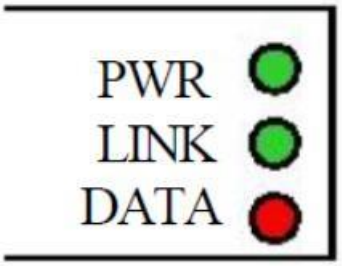
STBY LED blinks every 5-10 seconds. There is no signal from the car's computer. The device may not enter stand-by on some cars in which the ECU remains active after engine shut-off. This is normal and will not adversely affect operation.

Power Mode



PWR and LINK LEDs are solid green. This indicates the device is connected and functioning properly.

Calibration



PWR LED is solid Green. Link LED is flashing. ECU LED is solid or flashing. The device is in AutoCalibration mode. During this time, your engine will begin evaluation to generate an offset map. This allows the device to tune better the car for optimum performance.