

## INSTALLATION AND USER MANUAL

### 1 INTRODUCTION

Thank you for your purchase of VCMTUNER. The kit contains 4 pieces that should be included in your package.

Package Contents

1. Pluggable Tuner dial with 10 visual settings
2. In-line harness adapter with 3 connectors
3. Tuner Plug cover
4. Velcro wrap (1 or more)



### **READ - WARNING- Before you adjust the dial or install the product**

You should use a camera phone to take a picture of the initial setting of the tuner dial. This is your factory reference point – which is 82-83 ohms of resistance (2007+ models) and resides between the 40-45 setting on the dial. On CARB versions, 82-83 ohms resides between setting 60-65. For 2005-2006 models, the default resistance is 100 ohms, which is 50-55 on the dial. For CARB versions of 2005-2006, the default setting is position 80 at approximately 100 ohms. Also, a screwdriver must be used in the arrow slot of the dial for adjustment. Some users have thought that the housing could be turned, which would end up breaking the unit. This initial setting will also determine the maximum value you should safely use. If the 45 mark is your factory reference point, the max value you should attempt to use would be approximately 65 on the dial. If your factory reference point is at 40, then the 60 value is the max value you should attempt to use. You should test the factory setting before adjusting the unit to see if this resistance value works for your vehicle. Owners of 2005-2006 model vehicles normally need to utilize a higher resistance value due to a different coolant temperature sensor model. (e.g. setting 50-55) and may have to utilize a higher value than 60 to achieve results in some situations. When installing the product, be careful not to over-stress the connectors on the wire harness during installation. If a wire comes loose from the harness, you will need a replacement harness.

#### 1.1 Points of Contact

If you need assistance with this product, you may reach out to us via e-mail – [info@vcmtuner.com](mailto:info@vcmtuner.com). Our website and youtube channel also contains relevant installation and howto information.

#### 1.2 Automobile Warranty Concerns

Warning- use of this product could violate your vehicle warranty. Honda/Acura will not recommend disabling VCM/ECO mode in their vehicles due to legal complications. If your vehicle is a 2008+ Honda/Acura model it is recommended you remove this device when using dealer services if your vehicle qualifies for the “Engine Misfire Settlement”.

Leaving the vcmtuner harness on the engine could give the dealership an excuse not to warranty your claims.

## 1.3 Legal

Eastman Research LLC has reached out to consultants in the aftermarket auto industry regarding the legal use of this product. The California Air Resources Board (CARB) has mandated that all modifications to a vehicle that could change the emission limits require CARB testing in the State of California. The EPA has ruled that if a product meets CARB compliance, it will meet the EPA standard. This product has undergone testing at an accredited emissions lab at Sema Garage in Diamond Bar, CA. The product has met EPA Memorandum 1A emission requirements for the federal test procedure (FTP-75), Supplemental Federal Test Procedure (S06) and Secondary Supplemental Procedure (S03). The product has been proven not to increase the emissions with this device installed and is now in a CARB exempt status with Exemption E.O. D-809. The CARB certified version has a maximum resistance of 120 ohms and is the only part legal for sale in California to disable VCM operation. The standard version which is EPA compliant outside of California has a maximum resistance of 200 ohms to accommodate a wide range of thermostats and variances in vehicles.

## 1.4 Indemnity

You agree that by using this product you indemnify Eastman Research (vcmtuner) and/or any person associated with vcmtuner including affiliates, employees, etc from any and all legal liability associated with your use of this product. You use this product at your own risk. If you do not agree to these terms, ship the product back to us for a refund minus shipping expenses within 5 business days of receiving this product. For a full detail of the terms of service with this product, please visit <https://www.vcmtuner.com/pages/terms-of-service>.

## 1.5 Product Warranty

This product contains a 1 year warranty. To claim a warranty, you will need to ship the product back to us for repairs at your shipping expense. Problems caused by misuse and acts of god are not covered under the warranty.

## INSTALLATION

### 1.6 Tools

Before installing this product, ensure you have the required tools to install this product.

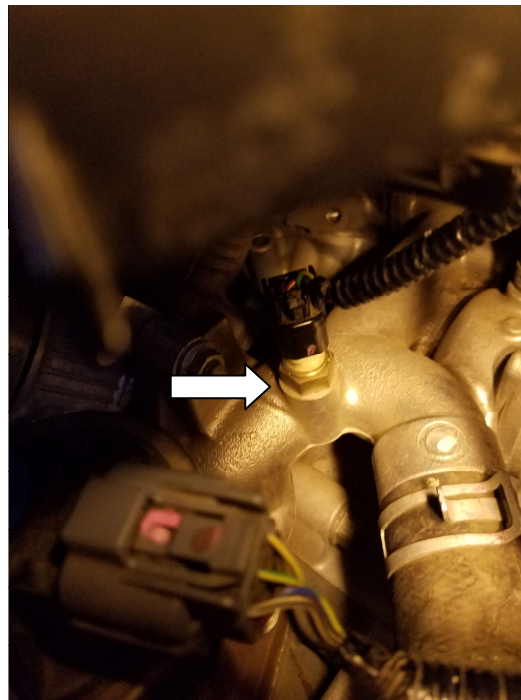
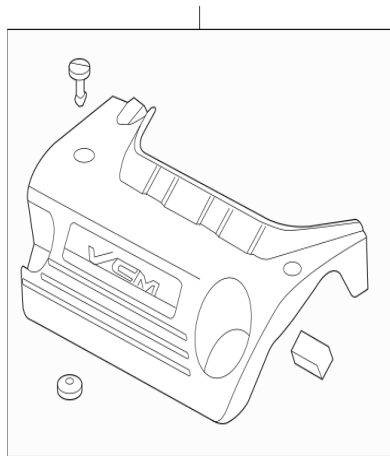
1. A medium sized flathead screwdriver.
2. Scissors (optional) for cutting Velcro wrap (if necessary)
3. ODB2 code reader (optional)
4. A small flathead screwdriver for adjustment of the dial slot on the tuner

### 1.7 Find the ECT1 sensor

The ECT1 sensor is located on the drivers side of the engine between the lower engine block and the radiator hoses. For the first time installing this product, it is recommended you take off the plastic engine cover with a medium sized flathead screwdriver. Turn the two plastic screws on the cover in a 90 degree fashion until the cover becomes loose.

Note: this may not be necessary on some models if the ECT1 sensor is readily accessible.

Below is an example of the engine cover from a 2008-2012 Honda Odyssey w/ VCM.



Above: Left: Engine Cover, Right: ECT1 approximate location - This sensor can be difficult to see. Stand on the drivers side of the engine and look down between the battery tray and the engine to find the ECT1 sensor port as shown above. Get a flashlight and look for a white colored plug below the wire. You will need to press the clip on the black plug, then pull upwards until the connector is removed from the ECT1 sensor socket.

## 1.8 Install the new harness

After you have removed the factory Honda/Acura connector safely from the ECT1 sensor, it is time to install the vcmtuner. You should assemble the provided vcmtuner harness with the tuner plug before plugging it into the ECT1 sensor. Plug the male end of the tuner harness into the ECT1 sensor port. Then plug the Engine harness female ECT1 connector plug into the unused male port of the tuning harness. You should hear a 'click' sound when the plugs are connected together properly. If no click is heard, your temperature gauge may not work properly and you may get a CEL (Check Engine Light) code on the dash.

**CAUTION: On your first time installing, I recommend the engine has been cooled down for at least some 50-60 minutes for safety reasons as the engine compartment could still be hot enough to burn your skin.**

On installation, you want to minimize the amount of movement on the engine harness ECT1 female connector plug. The factory harness may be brittle, burned, damaged or weakened from an overheated engine and should be treated as fragile. Make sure that the factory cable can be secured with velcro or another method that will not touch the engine, or will not let the harness or plugs vibrate when the vehicle is ready for operation. Portions of the engine harness ECT1 connector do not contain protective plastic wrap.



Above: Female ECT1 Connector Example

## 1.9 Mounting the tuner dial

Ensure you have your tuner dial in a position that is visible if possible. Not all makes/models of vehicles are guaranteed to have enough clearance for this. If you are going to be adjusting the dial while the vehicle is running (not recommended for safety reasons), make sure you can hold the tuner dial connector without burning yourself on the engine. Using the protective cover is recommended to keep dirt and debris out of the moving portion of the tuner dial. Since the tuner dial is removable from the assembly, you could always remove it and re-install if accessibility is an issue for your vehicle. If you are going to be removing the tuner dial portion it is recommended the vehicle be cooled down for some time to reduce the risk of injury. It is also possible to receive a check engine light on some models if any portion of the vcmtuner harness is removed while the ECU is still activated; the computer will see the circuit disconnected and throw a CEL code in some circumstances. If this does happen, the code will clear itself at a later time. If you have a code reader or scanner, you can clear the code at your convenience. The tuner adjustment plug on 2007+ models can work in both the middle-port or top-port of the supplied harness. 2005-2006 versions will only work in the top port of the harness.

## 1.10 Tuner Dial Settings

### NON-CARB version (Extended Adjustment Range)

The tuner dial has 4 recommended settings, but is adjustable between these settings to accommodate for all variances in ECT sensors. If you do not have an ECO light on the dash as with newer model vehicles, use the positions below based on the season of the year. These will work in most cases without any additional tools. Inexpensive ODB2 bluetooth modules exist to see the real time temperature reported to the ECU and can be used to validate whether the vcmtuner setting selected was successful in disabling VCM operation. The tuner plug comes factory tuned to 82-83 ohms. This setting should be just clockwise of the position 40 setting in the picture below.

Position 0 is used to allow normal VCM operation of your vehicle. There should be no change in visible temperature on the gauge.

Position 40 – This is the recommended setting for winter in most climates to disable VCM operation. In colder climates like Alaska or Canada, a setting of 35-40 may be used. This setting should disable VCM. Normally the factory setting is between 40 and 45.

Position 50- This setting is recommended in the summer months to disable VCM operation for areas not exceeding 110F.

Position 60- Areas like Phoenix and Northern California that have summer temperatures in excess of 110F. This setting should disable VCM operation. Leaving this setting on year-round will likely generate a P0128 check engine code if left this way during the winter.

**\*WARNING\*** Any setting beyond Position 60 with an active ECO light during freeway driving should be of concern. Your vehicle may have a cooling system problem such as a thermostat issue, radiator, engine problem, etc. The vcmtuner product only modifies the reported temperature gauge to ‘trick’ the ECU into thinking the engine has not hit the 167F VCM enable threshold. Warmup mode (open-loop) ends once the ECU sees a 158+ temperature.

The temperature gauge on the dash should read approximately 3/8 of the way between the cold and hot level when warmed up and never halfway between hot and cold. If your engine is having an overheat symptom, your temperature gauge will still have the offset applied of 8-20F depending on how much resistance is applied. The temperature gauge may read 1/2 to 3/4 hot compared to full hot in an overtemp scenario – around 225-230F. Additionally, the ECO light will behave as if the vcmtuner does not exist in this situation because the operating temperature will fluctuate outside of the narrow window needed between 160-165F to keep VCM disabled. For reference, most thermostats have a real operating temperature of 173-180F depending on make/model.

## **CARB Compliant version (VCMT1000 )**

The tuner dial has 4 recommended settings, but is adjustable between these settings to accommodate for all variances in ECT sensors. If you do not have an ECO light on the dash as with newer model vehicles, use the positions below based on the season of the year. These will work in most cases without any additional tools. Inexpensive ODB2 bluetooth modules exist to see the real time temperature reported to the ECU and can be used to validate whether the vcmtuner setting selected was successful in disabling VCM operation on those vehicles without an ECO light. The tuner plug comes factory tuned to 82-83 ohms. This setting should be just clockwise of the position 60 setting in the picture below.

Position 0 is used to allow normal VCM operation of your vehicle. There should be little to no change in visible temperature on the gauge.

Position 60 – This is the recommended setting for winter in most climates to disable VCM operation. In colder climates like Alaska or Canada, a setting of 55-60 may be used. This setting should disable VCM. Normally the factory setting is between 60 and 65.

Position 80- This setting is recommended in the summer months to disable VCM operation for areas not exceeding 110F.

Position 100- Areas like Phoenix and Northern California that have summer temperatures in excess of 110F. This setting should disable VCM operation. Leaving this setting on year-round will likely generate a P0128 check engine code if left this way during the winter.

**\*WARNING\*** Any setting beyond Position 100 with an active ECO light during freeway driving should be of concern. Your vehicle may have a cooling system problem such as a thermostat issue, radiator, engine problem, etc. The vcmtuner product only modifies the reported temperature gauge to ‘trick’ the ECU into thinking the engine has not hit the 167F VCM enable threshold. Warmup mode (open-loop) ends once the ECU sees a 158+ temperature.

The temperature gauge on the dash should read approximately 3/8 of the way between the cold and hot level when warmed up and never halfway between hot and cold. If your engine is having an overheat symptom, your temperature gauge will still have the offset applied of 8-20F depending on how much resistance is applied. The temperature gauge may read 1/2 to 3/4 hot compared to full hot in an overtemp scenario – around 225-230F. Additionally, the ECO light will behave as if the vcmtuner does not exist in this situation because the operating temperature will fluctuate outside of the narrow window needed between 160-165F to keep VCM disabled. For reference, most thermostats have a real operating temperature of 173-180F depending on make/model.

## 1.11 Troubleshooting

- **Temperature gauge does not move after 5 minutes of driving**  
Ensure all connectors are seated properly and connected to the system.  
Remove the vcmtuner harness and ensure the factory connector works properly, then reinstall. If no temperature is available after some 5 minutes of driving, contact us for assistance. A replacement unit may be required from damage to the harness and/or dial.
- **My ECO light comes on occasionally, but only for in-town stop and go driving**  
This might be acceptable if this only happens after some 2-5 minutes stopped in traffic. You might want to tune the dial clockwise a half or full click to fix the problem if the ECO light engages when coming to a stop. (e.g. rotate Position 40 clockwise to Position 50). With the A/C off and stopped in traffic, your coolant temperature can spike some 30F compared to highway operating temperature. This product is designed to modify the temperature as seen by the ECU some 13F-20F depending on the season.
- **I have a newer model vehicle that does not have an ECO light. How do I know if VCM is not engaging?**  
It would be recommended that you purchase an OBD2 VeePeak scanner for your vehicle. This is a relatively inexpensive utility (less than \$20 shipped on amazon) and will work with android operating systems over Bluetooth. It will also allow you to clear engine codes. This way you can use the free "Torque" app downloadable from the google play store to actually see the vcmtuner modifying the engine coolant temperature as reported to the ECU. During freeway operation, if the Engine Coolant Temperature sensor feature on Torque shows less than 167 degrees, VCM is not engaging on the freeway. If you utilize this tool I would recommend a desired freeway operating temperature of about 161-163 degrees max. Any higher than this and VCM operation will likely be occurring quite often in stop and go traffic.
- **I have a check engine light P0118 ECT Sensor 1 Circuit High Voltage**  
This can occur if you remove the adapter harness or tuner dial plug while the engine is still warm and the ECU is active. Even after removing the key from the ignition on the vehicle, there is still some residual voltage keeping the ECU awake for a period of time on some Honda/Acura models. If you have a code reader, you can clear it. If you are planning on taking your vehicle in for major service and want to remove the tuner harness to avoid any warranty issues, wait until the engine has cooled down for some time ~ in the 30-50 minute ballpark before removing said harness.
- **I have a check engine light P0128 - Coolant Thermostat below regulating temperature**  
Also can be seen as a "Check Emission System" light on the dash. This can occur if too high of a resistance setting is chosen. Also, the ambient temperature outside could have changed between seasons and now it's time to re-adjust the tuner. Occasionally, this is a fluke and will go away on its own if the daily temperature range has wide variances. You have a few options if you get this code:
  1. Turn down the resistance setting a half notch and reset the code. (e.g. position 50 -> 45)
  2. Turn the tuner to position 0 (re-enables VCM without removing the wire harness to see if your vehicle really has a coolant problem)
  3. Remove the VCMTUNER Harness from the vehicle, hook back up your standard connector to the ECT1 port and see if the code comes back. If the code comes back without the tuner installed, then this would prove 100% if you had a thermostat stuck open or a cooling system related problem.Make sure you clear the code w/ a code reader, if you do not have one autozone can sometimes do it for free. Select one of the options above and re-test to see if the check engine code persists.

For more Information, see the BIGFAQ at <https://www.vcmtuner.com/pages/frequently-asked-questions>