

Introduction

First of all, thank you very much for choosing EWAF Motorsports for your custom automotive electronics needs! I welcome your feedback and suggestions on product changes, improvements, and development at any time. Without your support this company is nothing. If you have any questions, concerns, or need help of any kind installing or using the product, feel free to reach out and I will do anything I can to help.

This product (the Cruise Converter) is a device designed to make it easier for owners of certain vehicles to keep their factory cruise control interface fully functional on a vehicle they have LS swapped. It consists of a small, waterproof control unit and a pigtail harness to splice into the vehicle's wiring harness. Installation should take less than an hour. Configuration should take mere minutes with your cellphone or laptop and any web browser; some vehicles (see website for full support list) may require a few extra minutes of custom calibration file generation work if they are not already natively supported by the time you receive this device. If you are not familiar with XML files and have such a vehicle, I am more than happy to assist by creating the file for you after a quick free video chat consultation to collect the necessary data and emailing it to you.

Installation

The Cruise Converter is fully IP69 waterproof (as long as the wiring harness plug is fully inserted) and can be mounted anywhere in the vehicle that you would like, within reason, inside or outside the cabin. Please maintain a reasonable (at least 6 to 8 inches) clearance to any hot exhaust, coolant, and transmission cooler lines. It should be mounted to a flat surface to avoid bending the case back half; not heeding this requirement may result in the plastic housing cracking and allowing water to get inside and damage the product.

All wiring connections should be done using Raychem DuraSeal (or equivalent) sealant lined heatshrink butt splices if you are not experienced in soldering, or prefer crimping over soldering. The crimps should be done with a proper ratchet style crimper such as an Astro 9477 or Rhino Tool Heat Shrink Butt Connector Crimper (both available on Amazon.) If soldering, sealant lined heatshrink MUST be used on the connections.

Wiring required:

Wire Color	Connection
Orange (or Pink)	Ignition Switched 12V
Black	Chassis Ground
Violet	Cruise Control Switch Signal
Brown	Cruise Control Switch Ground/Low Reference
Green	"Cruise Control" activity LED+ (wire LED- to ground)
White	Cruise On/Off to LS VCM or TAC module (usually to grey-white wire)
Blue	Cruise Set/Coast to LS VCM or TAC module (usually to dark blue wire)
Grey	Cruise Resume/Accelerate to LS VCM or TAC module(usually to grey-black wire)

Orange/Pink wire should be fed from no more than a 10A fuse. Connecting it to the factory LS harness where the original cruise control switch was fed +12V (usually by a brown wire) is acceptable; if using an aftermarket LS harness or stripping a factory LS harness to the bare essentials, simply feed the device from any 10A fused ignition switched circuit you have available as it draws less than 100mA.

Black wire may be connected to any convenient ground wire - engine harness, chassis, dash wiring, etc.

Violet and Brown wires are (somewhat) interchangeable. Refer to your factory service manual wiring diagrams as the color codes for the two vary from model to model and year to year, even within the Jeep

product line. If either wire from the cruise switch measures 0 ohms to chassis ground with no other wiring connected, this wire should be left unconnected and the other wire should be connected to the Violet wire. If neither wire measures 0 ohms to ground, connect whichever wire your factory service manual wiring diagram lists as “cruise control signal” (or similar) to the Violet wire and “cruise control low reference” or “sensor ground” to the Brown wire. If you are not certain, contact me with the make/model/year of your vehicle and I will determine how to connect the wiring. If using the Green wire (next section) to illuminate an LED built into the cruise control button module(s), you MUST get the Brown and Violet wires correct.

Green wire is an optional connection for those who desire a “cruise on” status lamp on their dashboard. It simply provides 12V when the cruise control status is ON. The other side of the status lamp should be wired to ground. If using an LED status lamp, wire the green wire to the +/A/Anode terminal and ground the other one.

White, Blue, and Grey wires are wired to the LS VCM (on drive by cable vehicles) or TAC module (on drive by wire vehicles.)

All other wiring for the cruise control system is exactly as it would be in whatever vehicle your LS engine was taken from. You will need the factory style CCM (cruise control module) on DBC engines, no extra module is required on DBW vehicles. All GM factory equipment required for cruise control to function is required - such as brake lamp switch input, clutch safety switch input (on some manual vehicles), vehicle speed sensor, etc. Your tune should be correctly set up for the number of pulses per mile your VSS provides, or your cruise control may be artificially limited to very low or very high speeds. With the VSS calibrated correctly the cruise control should function at any speed over approximately 25mph (depending on vehicle donor and configuration, this information was based on the owners manual for a 2003 Sierra, for example)

Configuration

When at all possible, the product will be shipped to you preconfigured for your requested vehicle. Assuming your cruise control button module(s) are functional and from the requested vehicle, it should “just work” out of the box after making the 7 or 8 wiring connections in the previous section. However, I am painfully aware of how custom vehicle projects “get away from” us, and if you have changed your steering column, steering wheel, or cruise control button module for another one by the time you get around to installing this product, it should be easy to change the configuration to the correct one - assuming it's still a supported switch module type:

- supply 12V to the product. It's not a power hungry device, so you don't need to start the engine as long as you don't let the battery go dead.
- using your cellphone or laptop, turn on WiFi and look for a network named EWAFcruiseConverter. Connect to it. The password is “configure”, all lowercase.
- open your web browser and enter <http://cruise.control/> in the address bar. Press enter.
- At the login screen, enter the username (EWAF, in all capital letters) and password (EWAF, in all capital letters.) Press the login button.
- click the second link titled “Configure Device”.
- At this time most of the checkbox features are still in development and should NOT be changed. Only the very last option, “Configuration File”, should be changed, to whatever vehicle your cruise control button module(s) came from. In some cases there may not be an exact match - for example, for a 97 ZJ there is no file named 97-98 ZJ, but if you select 97-98 XJ.cal it will work. A separate document will also be appended to this instruction manual listing all of the (at ship date) known cruise control button modules this product currently supports and which calibration file to select for each. It will also include information on what resistances to expect to measure across the two wires when each button is pressed so that you can identify unknown button modules and use the correct calibration file. If yours is not listed in any of this documentation, please check the product website at <http://ewafmotorsports.com/xjcruise> - there are links at the bottom to the latest edition of this instruction manual as well as an archive of firmware images and calibration files. You may find that the manual, calibration list, and/or calibration file archive have been updated since this document was

printed for your order.

- click the “Save Configuration” button at the end of the screen. Your device is now fully configured!
- To verify that the cruise control buttons are being correctly interpreted by the device, open the “Device Status” link at the top of the main screen. You will be presented with a screen listing the firmware version, current input ADC (analog to digital converter) value, a dump of the device’s current configuration settings file and calibration file selection, and error or system status.
- The error or system status can be used to determine if the buttons are being correctly interpreted. Simply press and hold a cruise control button, and refresh your browser. The error/system status line should say which button was pressed. Repeat several times for each button to make sure they are not intermittent.
- If no calibration file on the list matches your vehicle, you should start by trying similar models from the same manufacturer and the same year range. For example if you have a 96 Jeep, the first thing to try would be the 96 XJ file, 97-98 ZJ or TJ Jeep you would try the 97-98 XJ file. 99-01 you would try the 99-04 WJ or 99-01 XJ file, or a 99-02 TJ file. Dodge vehicles would try these same files as well as they shared an ECU/PCM and are most likely to share minor calibration tables such as these.
- If you still cannot get it working with any of the existing calibration files, try any newly released files from the same year range and manufacturer on the calibration file archive on the website. These calibration files can be uploaded to the device using the “Upload Custom Calibration File” link on the main screen, then selected on the “Configure Device” screen and tested using the “Device Status” screen. If you are successful, PLEASE report this to me so I can update my documentation.
- If no web archive calibration files work either, you have a few more choices.
 - One, if you are within 1 hour drive of Belfair WA 98528, schedule an in person calibration session with me. This is free and we can meet anywhere that is convenient for you, whether it is at your shop, mine, or anywhere in between.
 - Two, you can create a custom calibration file for your device and upload it the same way you would upload a calibration file downloaded from the web archive. Instructions on manually creating a calibration file to match your devices readings will be added to this manual shortly; check the website for an updated version.
 - Three, you can video chat me via Facebook Messenger and I will walk you through collecting the data I will need to create the calibration file, create it for you, and email it to you.

Firmware Updating

To update the device firmware, simply download the correct revision from the web archive, then at the main screen (right after the login screen) choose the “Update Device Firmware” option. Follow the instructions from there. DO NOT DISCONNECT POWER FROM THE DEVICE UNTIL IT HAS FINISHED WRITING THE FIRMWARE AND REBOOTED AUTOMATICALLY. This may “brick” the device leaving it unrecoverable without being returned to me to be opened and reprogrammed the hard way.

Day to Day Use

There should be no real reason to even think about the product from day to day. Once it is configured, it should pretty much take care of itself. The only reason you should need to work with it is when changing the type of cruise control switch module you are using (for example, if you have a 99-01 XJ and can’t find a replacement switch module or were sold an incorrect year range switch module as the part numbers are very similar.) If any issues arise feel free to contact me and I will work with you to determine what is wrong, whether it is a failed clockspring, dirty switch contacts, incorrect calibration, or device failure.