



IMPACT ECU Instructions

Installation Instructions

Installation Notice

Fuse Removal Notice

Important: Please remove your motorcycle's IFCU (10A Radio) & Main (60A) Fuse prior to removal of the OEM ECU.

Failure to remove the IFCU & Main (60 amp) fuses prior to removing the OEM ECM will result in Wireless Carplay & the embedded navigation functionalities potentially being disabled.

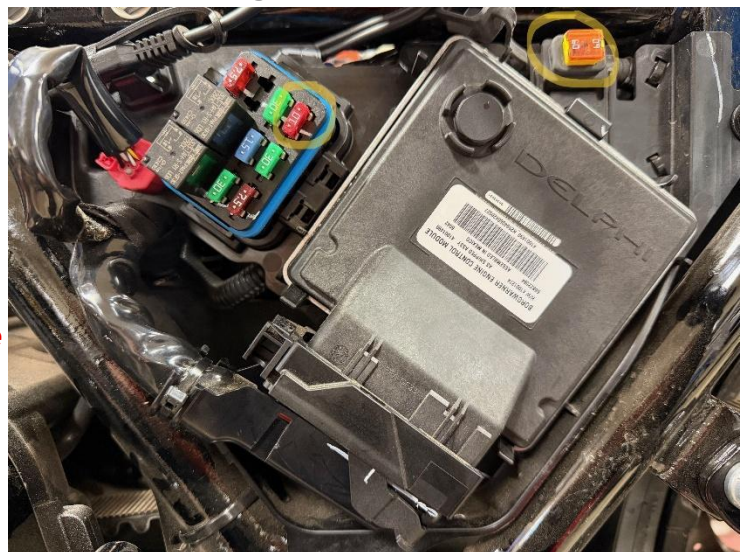
DO NOT re-install IFCU & Main Fuse until the Impact ECM has been installed and the VIN has been programmed into the module.

Impact ECM receives power from your computer via the USB cord so Ignition Power is NOT required for the programming of the VIN

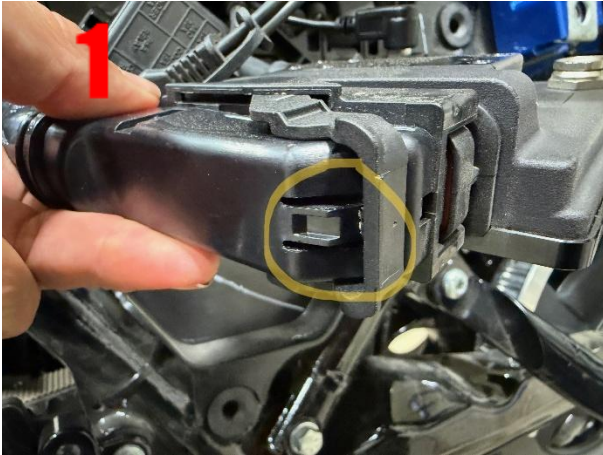
For instructions on how to re-enable these features if they have been lost please see our appendix.

Impact ECU Installation for 2023+ Touring Bikes

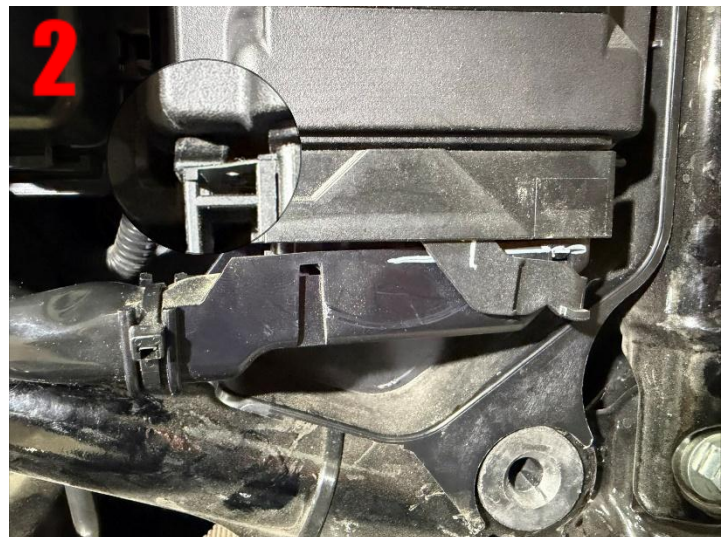
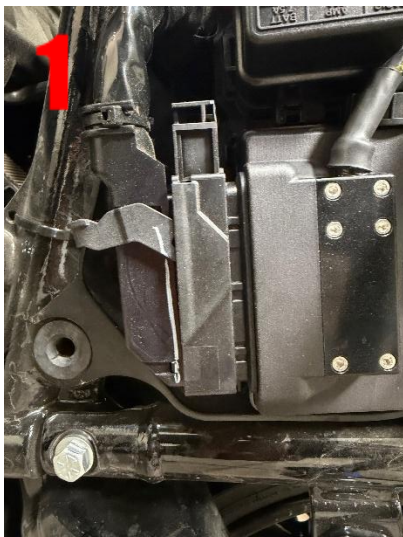
1. Remove the lower radiator cowling, seat, saddlebags, and side covers.
2. ***Failure to complete this step could result in your dash needing a factory reset from a Harley-Davidson dealer to restore full functionality. Switch the ignition to the on position, remove the 60A main fuse, and then the 10A Radio/IFCU fuse shown circled in the image.***



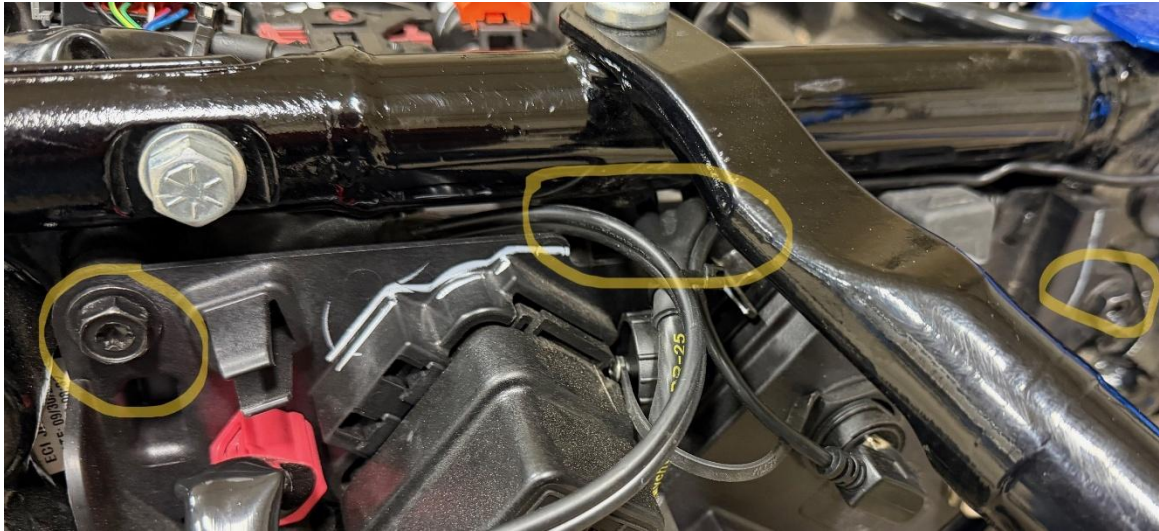
3. Unseat the ECU from the factory location by gently releasing the locking tabs below the connector. Now remove the main wire harness connector to the ECU. There is a push button to release the lock for the release level. Once the lock is depressed the lever arm rotates upward to unseat the connector. *Be very careful not to damage the lever arm or connector in the process.*



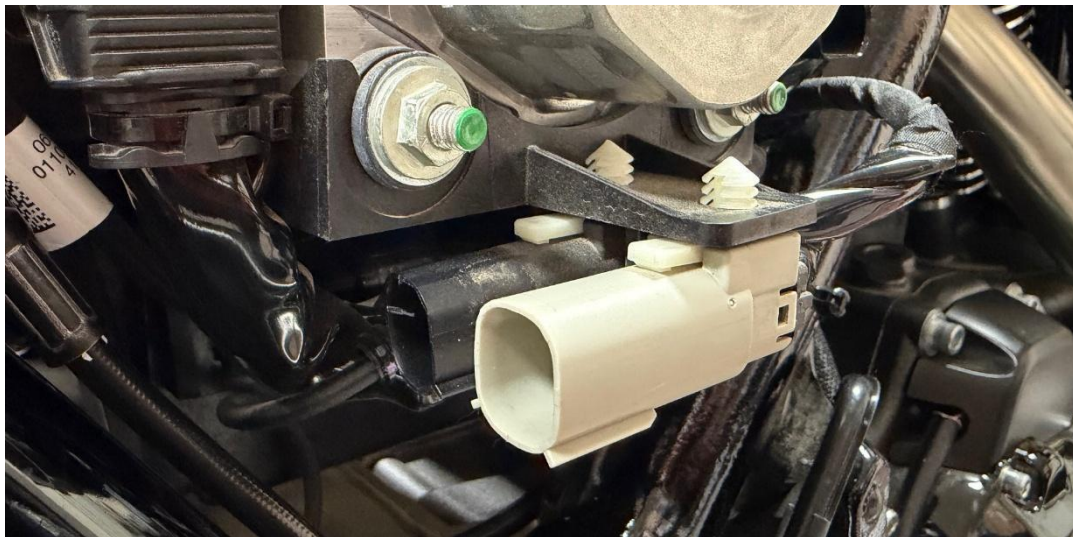
4. Install the connector for the bike's main wiring harness into your new Impact ECU and begin to latch the locking arm about halfway to get it started and then install the ECU into the cradle and ensure the ECU is fully seated into the cradle.
 - a. **Once seated**, finish closing the lever arm fully ensuring it is in the locked position. This is necessary due to the tight clearance between the ECU cradle lock and the connector. If you have trouble getting the connector to seat, ensure you have the ecu pushed all the way down into the cradle.
Failure to follow this step may result in the ECU not being fully secured into the cradle or the connector not being fully seated on the ECU.



5. Remove the 2, ½ inch bolts at the top of the electrical panel, gently pull it away from the subframe and run the Impact connectors through the relief in the middle and then replace the bolts.



6. Unseat the factory front narrowband O2 sensor from under the right side cover and remove it. You will utilize the same cable routing for the new wideband harness where it picks up in front of the swingarm. You will need a few zip ties but most of the harness will run through the factory clips.



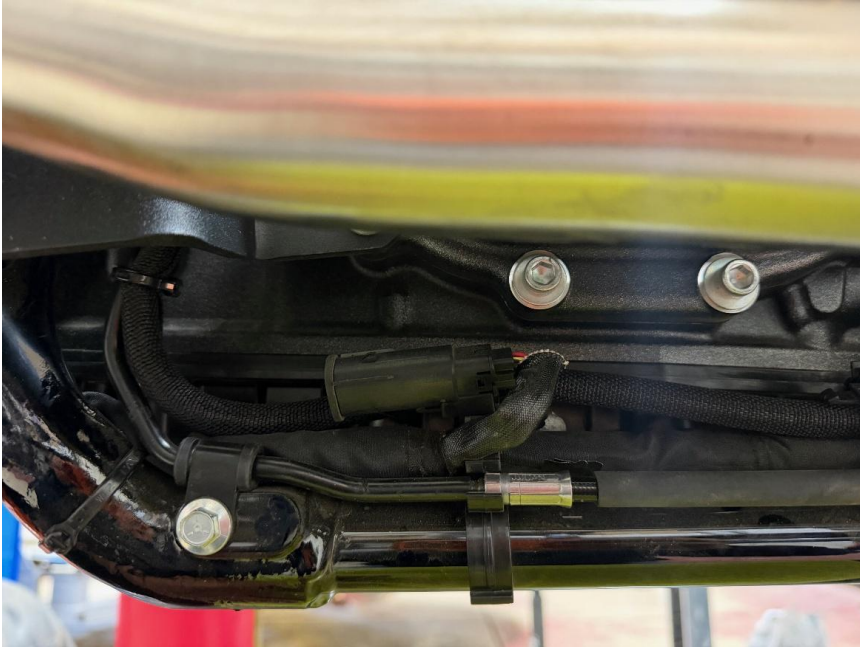
7. Route the front Impact O2 sensor harness through the opening in the frame and as you remove the stock wiring replace it with the new harness. The O2 sensor

connector will fit through the same opening in the front and rest behind the brake master cylinder area and connect it to your new wideband sensor. Make sure to secure the connector and wiring to ensure it's not rubbing on anything or could get damaged. **Be careful when fishing the connector behind the master cylinder. There are delicate connectors and wiring back there that could be damaged if pulled on.**

8. Underneath the seat area, connect the WBO2 Harness to the gray 12 Pin Plug coming from the ECU. **The second open connector on the Impact will remain unused by most users. That harness is for additional sensors or other optional accessories.**



WBO2 Sensor Harness Routing



1. Unseat the rear narrowband O2 sensor next to where the front one was and remove it. The impact harness will run through the same frame location that you ran the rear through.

2. Remove your existing O2 sensors and then install your new wideband O2 sensors and connect them to the harness. Be sure to double check routing and look for any spots that could chaff or melt the harness and secure them appropriately.





Initial Impact Wiring Solutions Set-Up

All instructions and software listed below are essential to learning and performing tunes on the Impact Wiring Solutions ECU. Do not leave any steps out, they are all crucial to the set-up.

- Ben Lisca

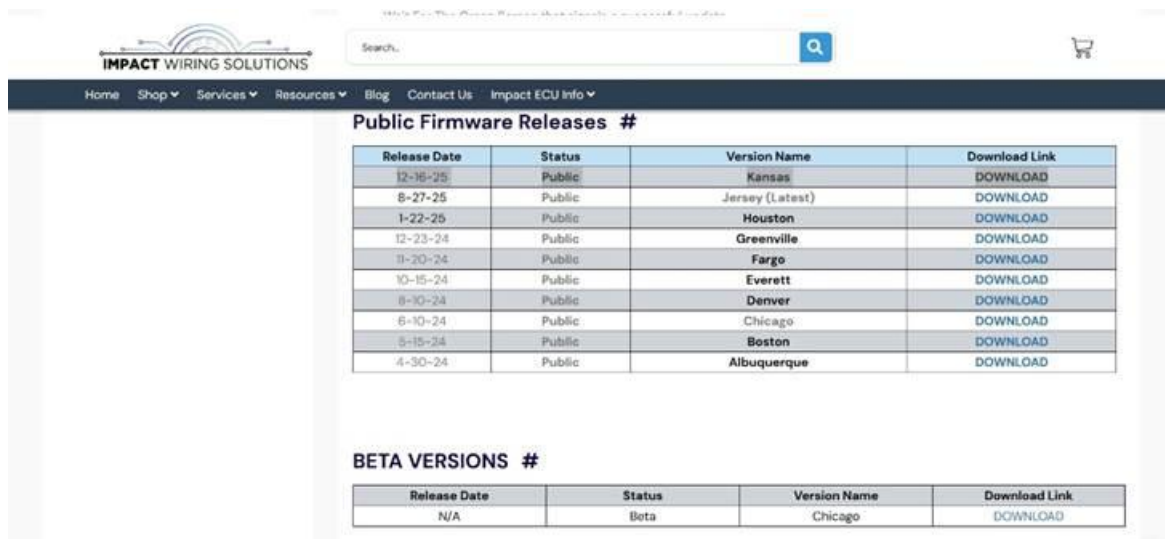
All instructions must be performed on a Windows 8 or newer system.

Impact Software Download

When performing a new install, download the latest firmware.

First, navigate to the website impactwiringsolutions.com, and find the “Impact ECU Info” tab at the top.

Next, click the “**Firmware Downloads**” link, and it will take you to this page:



IMPACT WIRING SOLUTIONS

Search

Home Shop Services Resources Blog Contact Us Impact ECU Info

Public Firmware Releases

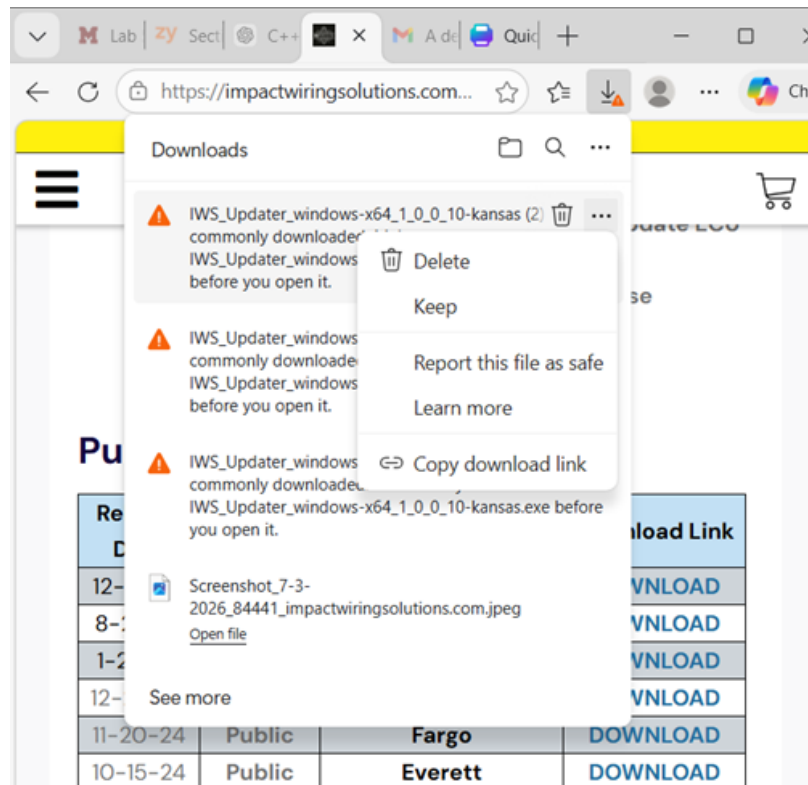
Release Date	Status	Version Name	Download Link
12-16-25	Public	Kansas	DOWNLOAD
8-27-25	Public	Jersey (Latest)	DOWNLOAD
1-22-25	Public	Houston	DOWNLOAD
12-23-24	Public	Greenville	DOWNLOAD
11-20-24	Public	Fargo	DOWNLOAD
10-15-24	Public	Everett	DOWNLOAD
8-30-24	Public	Denver	DOWNLOAD
6-10-24	Public	Chicago	DOWNLOAD
5-15-24	Public	Boston	DOWNLOAD
4-30-24	Public	Albuquerque	DOWNLOAD

BETA VERSIONS

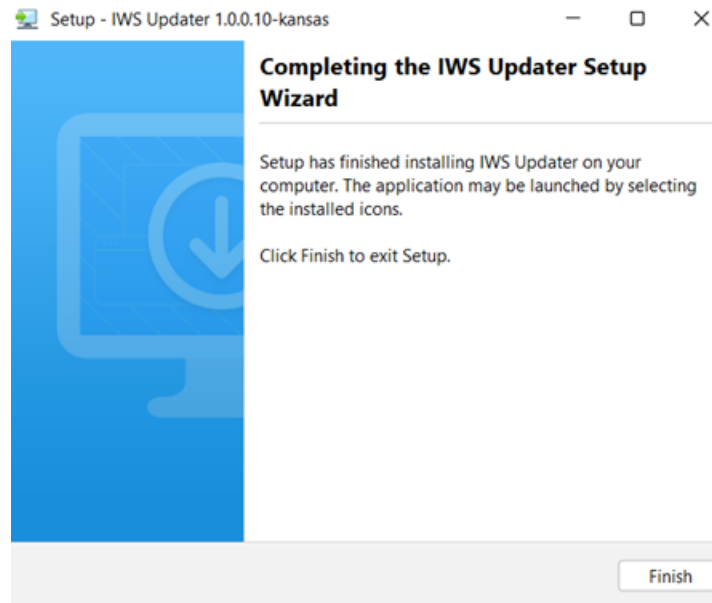
Release Date	Status	Version Name	Download Link
N/A	Beta	Chicago	DOWNLOAD

From here, you can download the latest firmware for your device. In this case, the latest version is “**Kansas**”, highlighted at the top. Pay attention to the names and make sure you are downloading the latest correct firmware.

After clicking “**DOWNLOAD**”, your firmware will begin the download process at the top right of your screen. Your laptop will give you a warning that your firmware is not downloaded often, ignore this warning. Click the three dots on the side of the download. This will give you the “**More Options**” menu. From here, you can click the “**Keep**” button to keep the firmware on your laptop. One more warning will appear, select “**Keep Anyway**” from the dropdown menu.



After downloading is complete, click the “Open File” option underneath the firmware. Allow the firmware to make changes to your device, and follow the prompts to successfully finish the download.



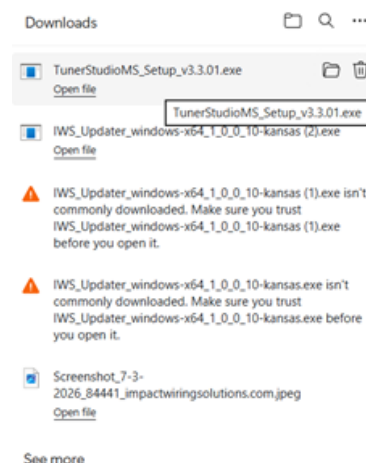
Click the “**Finish**” button and the firmware installer and base map library has been successfully installed and the “IWS Updater.exe” shortcut placed on your desktop.

Downloading the TunerStudio Software

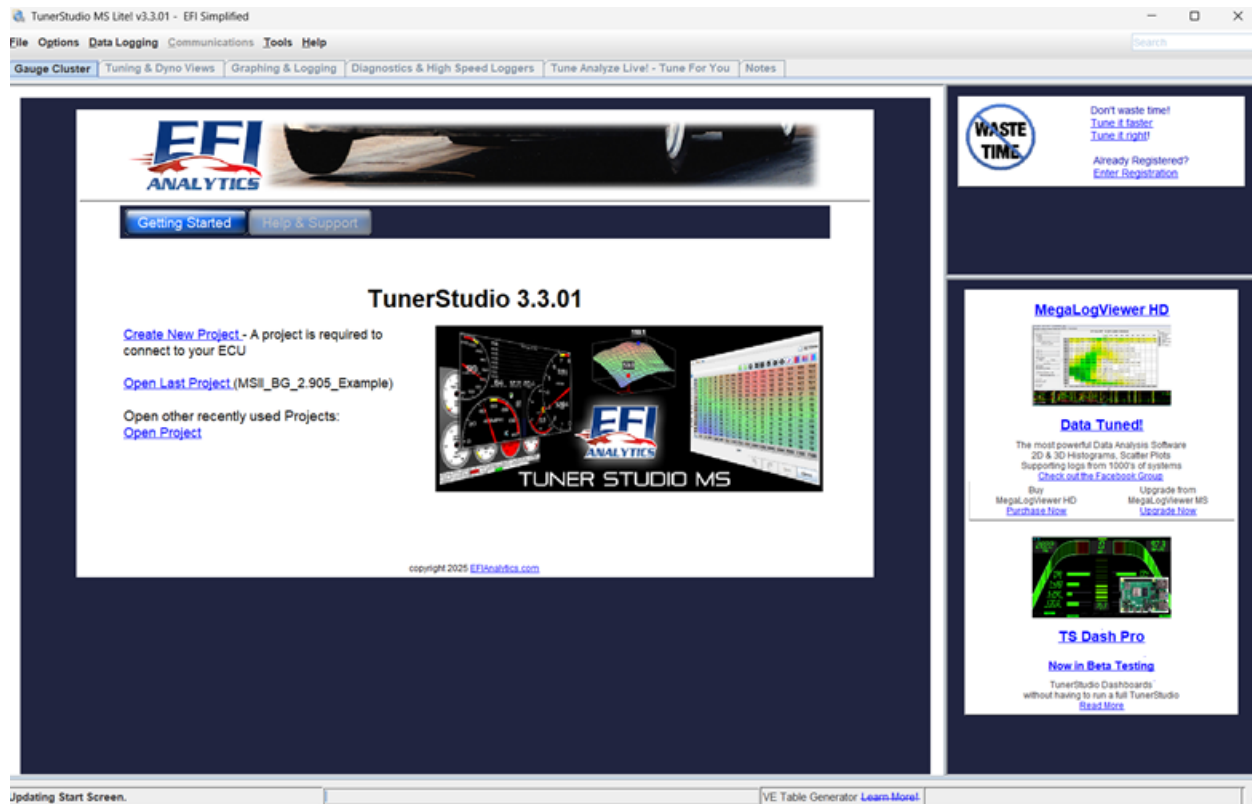
This software is the main software used to tune the Impact ECU. Begin by typing the link into your browser provided below. This will automatically download the tuner for you:

go.impactwiringsolutions.com/iws-tuner

If you made it to this download page, you are in the correct place:



Click the **“Open file”** button underneath the downloaded TunerStudioMS_Setup file, and follow the prompts. (Make sure you create a desktop shortcut during this process, or may have a hard time finding Tunerstudio!)



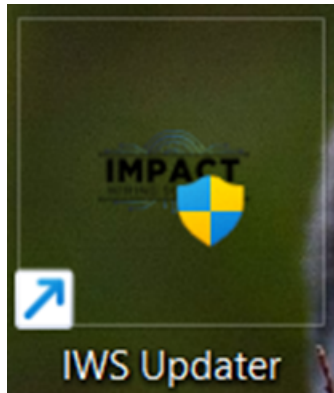
If you see this screen, you have successfully downloaded the TunerStudio Software!

Preparing to Tune the ECU (Project Creation)

Update the Firmware and Load a Tune Onto the ECU

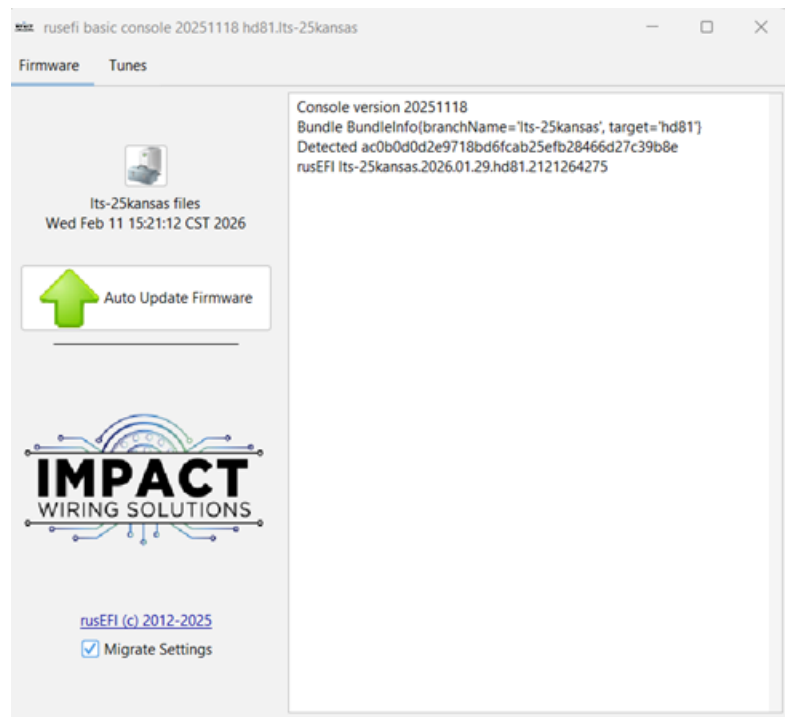
After installing the unit, you will need a **Type-B (printer cable) USB cable** to connect to your computer and Impact ECU. After connection, we will perform the USB update.

Navigate back to your desktop, and double-click the IWS Updater.

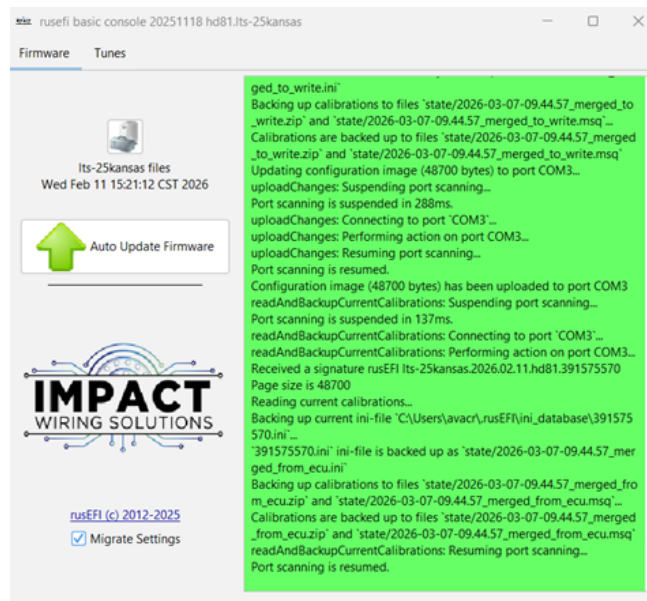


If the software asks you to close TunerStudio, just click **“No”** and continue.

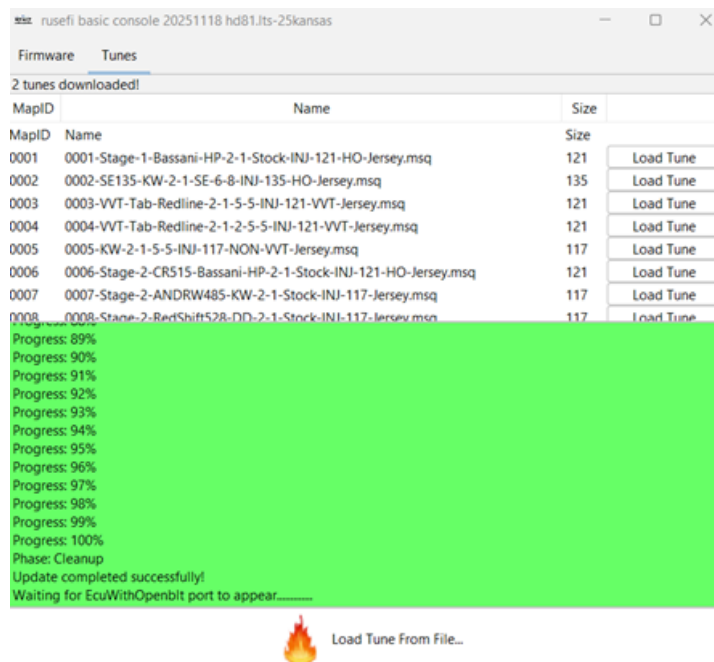
Once you arrive at this page, click **“Auto Update Firmware”**.



Below is what a successful update will look like. If the screen highlights red, unplug the USB from the PC, and restart the updater. Reconnect the USB and try again.



After successful update, within the Impact ECU updater app click and switch to the “**Tunes**” tab. Select the tune that is most appropriate for your vehicle and click the “Load Tune” button corresponding from it. (not the button with the fire icon at the bottom)

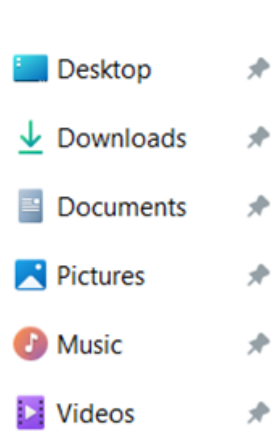


If your screen looks like this, you have successfully loaded the tune onto the ECU.

Tune File Organization

Finding your files is very important when tuning. The file and tune organization really depends on you, but we recommend organizing it this way by creating folders before creating a project in TunerStudio.

Begin by opening file explorer and selecting “Desktop” on the left hand side of the screen.



Next, click the “+ New” at the top left hand corner of the screen. Then, select the “Folder” option.



The first folder you will create will be the main Impact ECU customer folder. This is where all of your files will be located after tuning. More folders will be created for each customer you tune for *inside* this main folder. You can create them based on the vehicle, the model, the date, or whatever organization makes it easiest for you to find your work. However, to begin the file organization process, we will just create our main file. For this example, we will just call it “Impact ECU Customer Tunes”. (You can name the folder upon creation and just click off once it is named. If you want to rename the folder, just right click on the folder and click the “Rename” option.)

 Impact ECU Customer Tunes

3/7/2026 10:33 AM

File folder

Great! Now you can begin organizing the vehicles. For this example, we will just create a Harley-Davidson Motorcycles folder. Double-click on your main folder, our “Impact ECU Customer Tunes” folder, and create a new folder by repeating the process above. You can add as many vehicles as you like, what you tune is entirely up to you. Keeping your files clean and navigable is essential to giving your customers a great product. Eventually, you will need to give the customer the files of the tune, so organizing them is very important!

📁 Harley-Davidson Motorcycles 3/7/2026 10:44 AM File folder

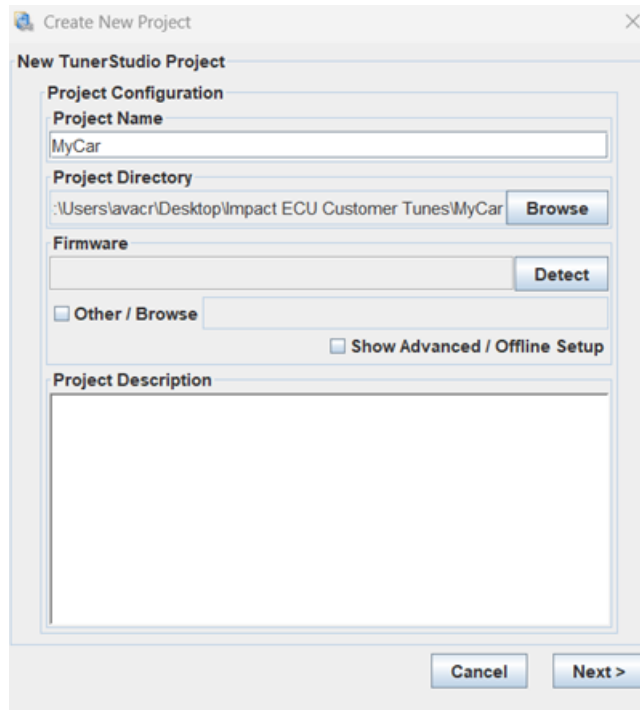
Congratulations! The file organization process is now finished. The rest will be done in TunerStudio.

Creating a New Project

Open the Tunerstudio program and select the “Create New Project” link on the home page.



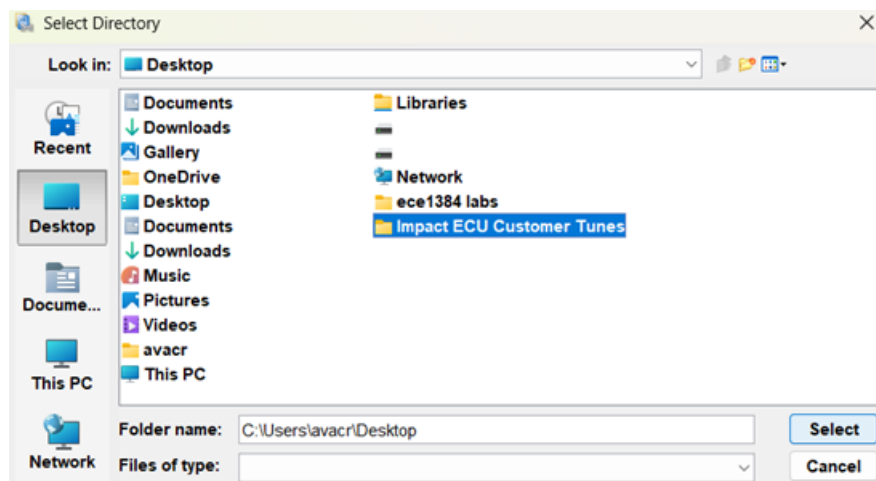
You will see this screen appear. This is where your file organization will come into play.



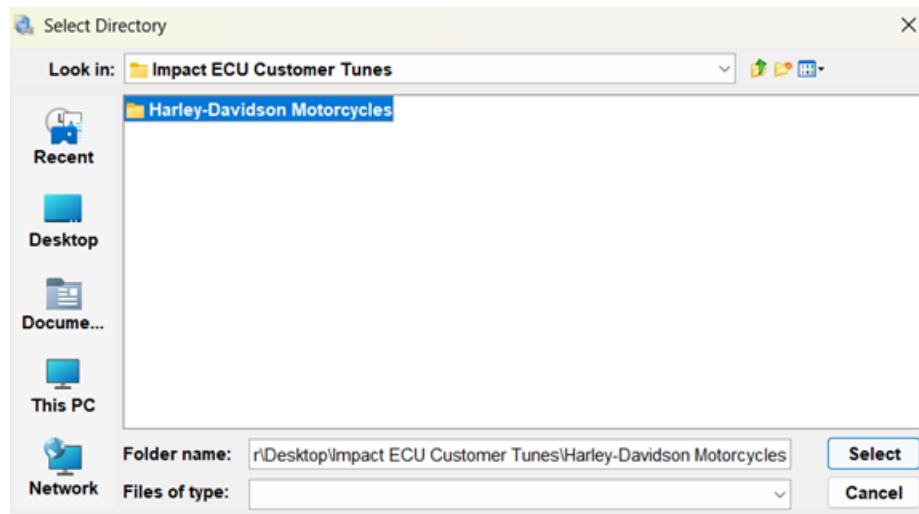
For this example, we will change our project name to the last 5 digits of the vehicle's VIN number followed by the customer's name. The project name is entirely up to you. Delete "MyCar" and replace it with your preferred project name.

Next, you will need to send your project files to the correct folders so you can find them. Below the Project Name, you will see a Project Directory selection. Click the "Browse" button on the right side of the Project Directory, this will open up your file explorer.

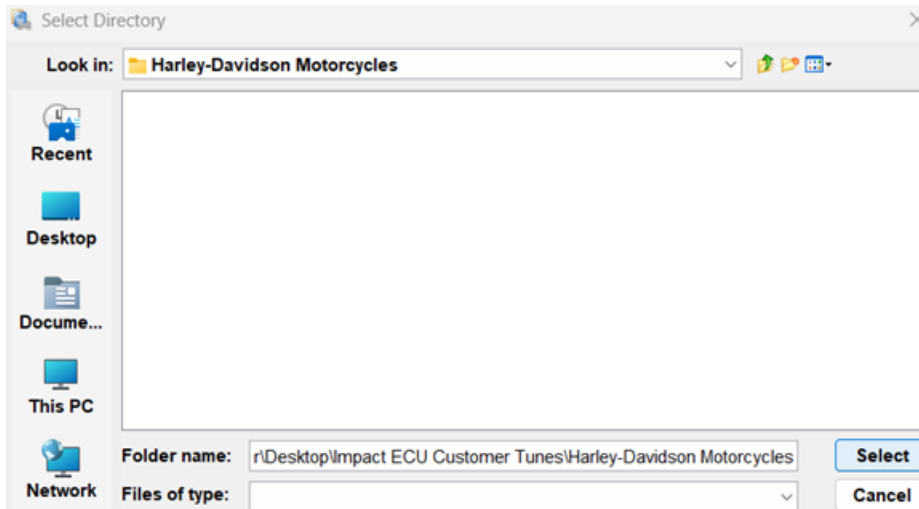
Make sure you select the "Desktop" option on the left, and select your main file by double-clicking it (our "Impact ECU Customer Tunes" folder).



Next, select the vehicle folder that you will be working on, and double-click it. For this example, we will just select our “Harley-Davidson Motorcycles” folder.

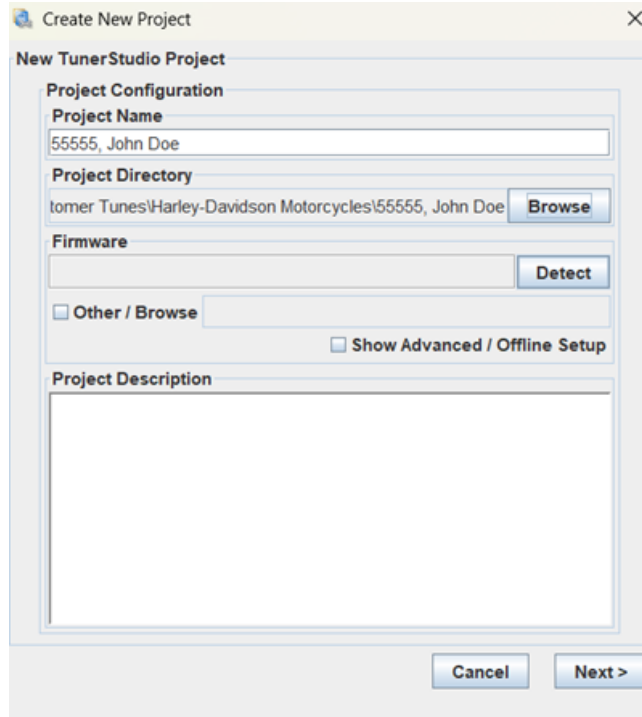


This is your first project, so this folder will be empty. After selecting your vehicle folder and opening it, just click the “Select” button at the bottom right hand corner.

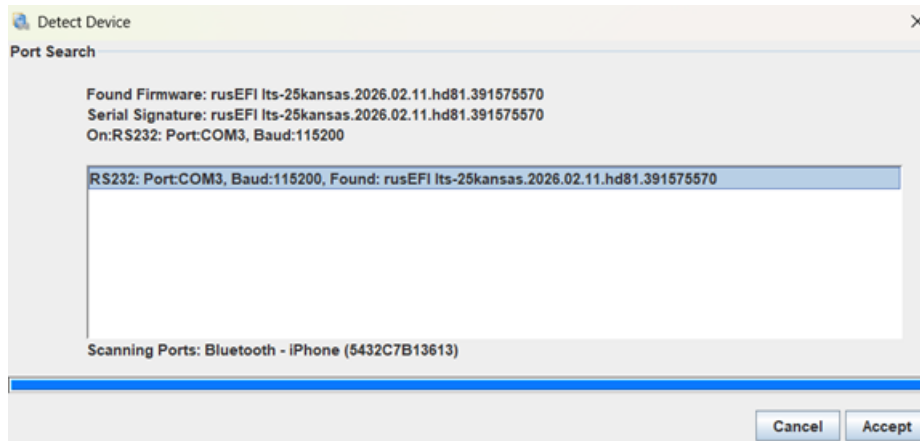


Now the directory has been specified, and your files will save to the correct place.

Next, look at the “Firmware” section of the project creation menu. Click the “Detect” button, this will link the ECU to StudioTuner. The software will not allow you to create the project if the ECU is not connected.



Once the Impact ECU is connected, this screen will appear. Just click accept, and continue.



The last step for the project creation process is the description. It is entirely optional and up to you. For this example, we just entered the customer's name, last 5 digits of the VIN, the vehicle, the year, the model, the date of the tune, and who tuned the ECU. When the process is finished, your project creation menu should look similar to this:

Create New Project

New TunerStudio Project

Project Configuration

Project Name
55555, John Doe

Project Directory
tomer Tunes\Harley-Davidson Motorcycles\55555, John Doe **Browse**

Firmware
rusEFI Its-25kansas.2026.02.11.hd81.391575570 **Detect**

☐ **Other / Browse**

☐ **Show Advanced / Offline Setup**

Project Description

Customer: John Doe
VIN: 55555
Vehicle: Harley-Davidson Motorcycle
Year: 2026
Model: Roadglide
Date: 3/7/2026
Tuner: Ben Lisca

Cancel **Next >**

Click “Next” until “Finish” is presented, and finish creating the project by clicking the button.

If you are given this error upon creating the new project, navigate to “Setup” at the top left, click “Vehicle Information” from the dropdown menu, and input the vehicle’s VIN number. Next, click “Burn”.

Error!

Settings Error!

You have a settings error! on 55555, John Doe
This means there are conflicting settings and the rusEFI does not know how to handle them

The following error was reported by the rusEFI:
Click 'Setup' top-left button, select 'Vehicle Information' menu, update VIN, hit Burn!

Unless directed in the above message, you do not need to reload firmware to fix this problem.

To resolve this you need to correct this error in your settings then powercycle the rusEFI

Close

Awesome! You are now ready to begin tuning the Impact ECU!

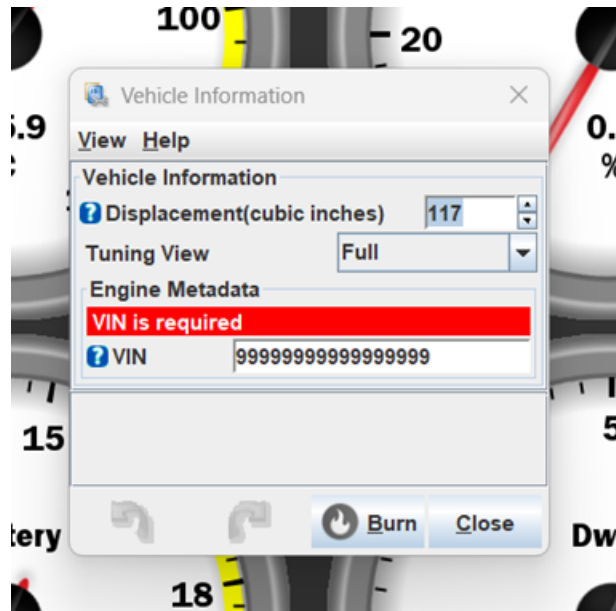
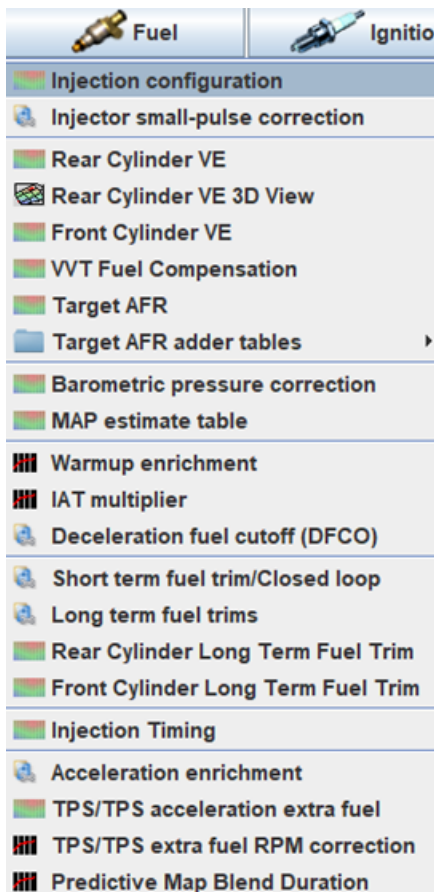
Tuning the Impact Wiring Solutions ECU

Setting ECU Constants

Find the “Setup” tab at the top left of the screen once again, and click the “Vehicle Information” option from the drop-down menu.

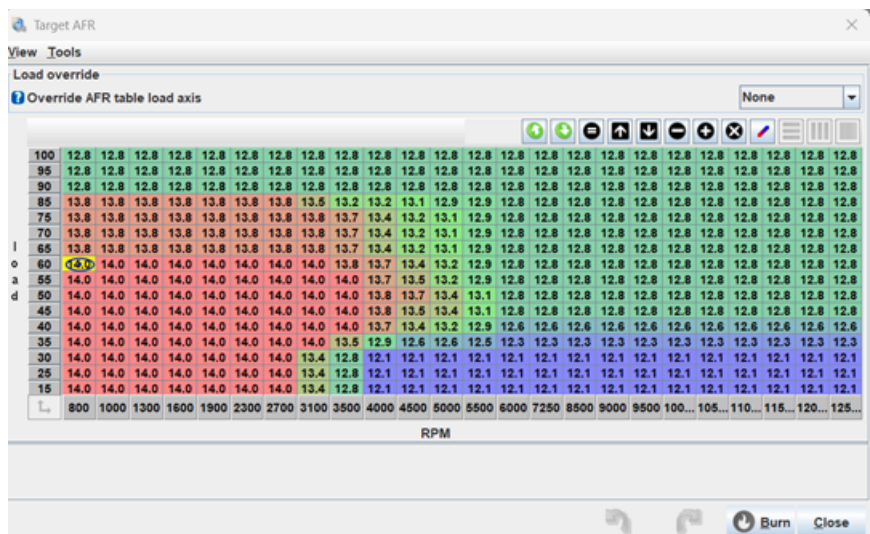
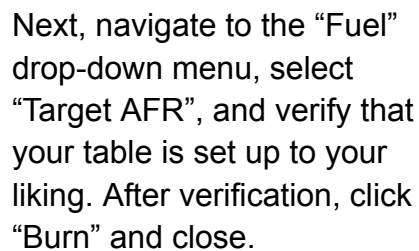
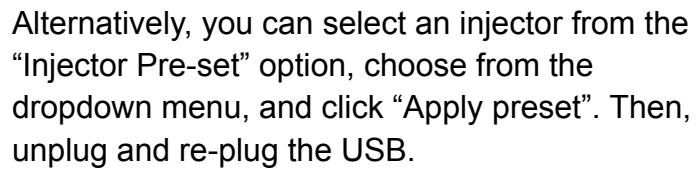
Verify that the displacement (engine size) and the VIN are both correct before continuing.

Injector Sizing



Next, find the “Fuel” menu, and select “Injection Configuration” from the drop-down menu.

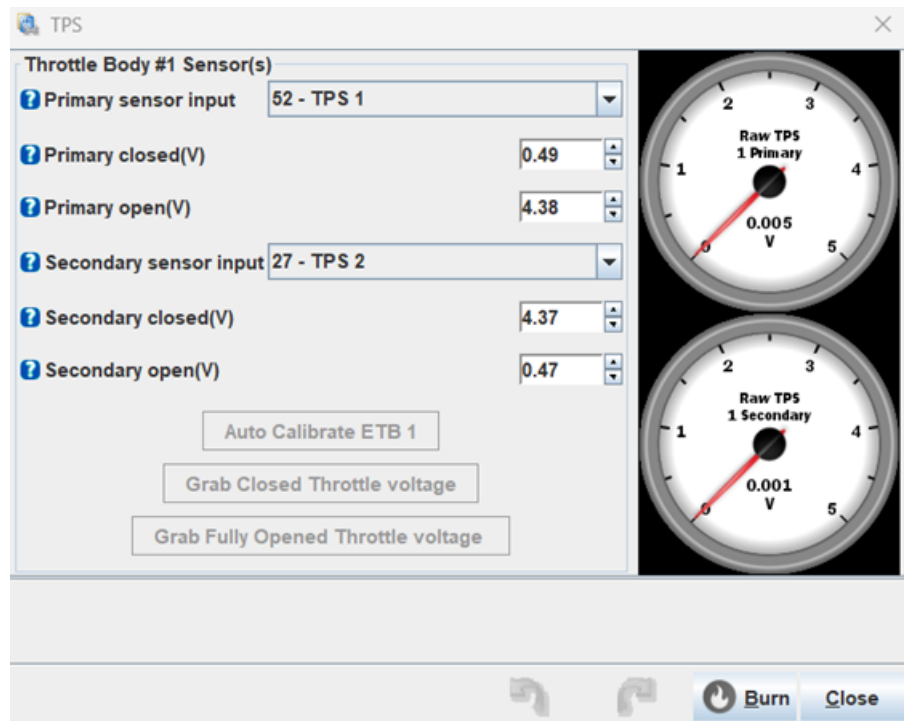
This will open a menu. Find the “Injector Flow” and “Injector Flow Units” options, and verify the **injector flow units** are set to **grams per second**, and the **injector flow** is set correctly to the **size injector** you are using. After verification, click “Burn” and close. (Generation 2 M8 use the 5.5 g/s injectors stock).



Throttle Body & Twist Grip Sensor Calibration

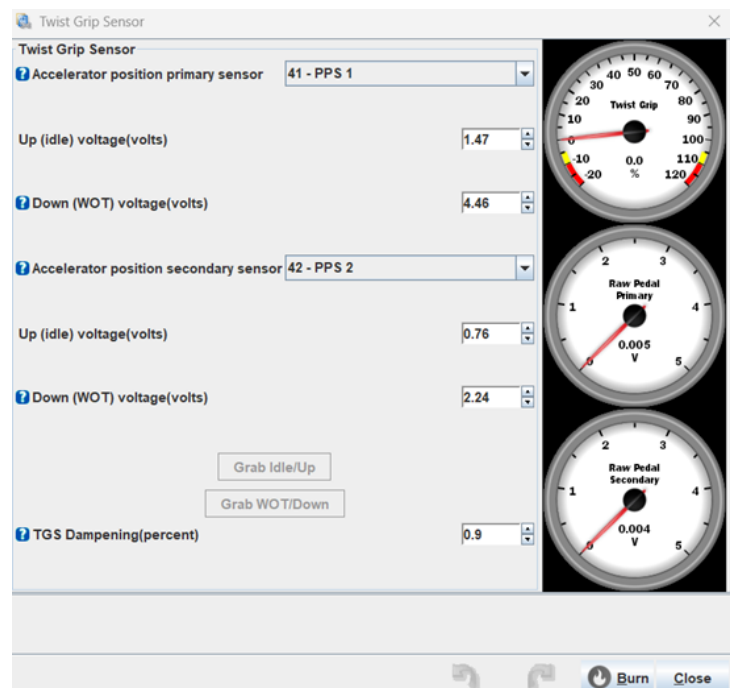
At this point in your setup process, turn on the ignition.

Next, go to the “Sensors” drop-down menu and select “TPS”. Click “Auto Calibrate ETB 1”, you will hear the throttle body cycle. After this step, click “Burn” and close. (This particular screenshot does not have the option lit up because the ignition was not turned on. This option will be the only one lit up and available for you to click once the ignition is turned on.)



In the same “Sensors” drop-down menu, select the “Twist Grip Sensor”. Without touching the throttle, click “Grab Idle/Up”. After clicking, hold the twist grip wide open while holding the “Grab WOT/Down” button. After this step is complete, click “Burn” and close. (The options will be lit up to you during your tuning process. Due to the ignition not being on in the screenshots, they are not lit up.)

After completing the above steps you are ready to test the engine. Cycle the ignition **OFF** and then **BACK ON** again, and TAP (**DO NOT HOLD**) the crank button, the engine should fire!



**For More In-Depth Tuning Documentation,
please scan the QR Code below or visit:
www.docs.impactwiringsolutions.com**



Frequently Asked Questions

1. Once installed, is the ECM locked to a specific bike or VIN?

- a. No, the ECM is not locked to a specific bike or VIN number, all you would need to do to transfer the unit to another bike is swap the old VIN number out for the new one as described in our Quick Start Guide.

2. What is “Speed Density” tuning vs. other methods?

- a. Speed Density tuning uses manifold absolute pressure (MAP) / intake air temperature along with VE (volumetric efficiency) tables to calculate airflow and thereby fuel delivery. It tends to adapt better to changing conditions (altitude, temp, mods). By contrast, Alpha-N tuning uses throttle position and RPM (less direct measurement of intake airflow) and can be simpler but less precise under certain mods or environmental changes.

3. Do I lose my ride modes or cruise control functionality?

- a. Quite the contrary, we have fully customizable ride modes, and by default cruise control works as intended and we have additional options for adjustment if you are the kind of person that likes to tinker.

4. How do I raise my Rev Limiter?

- a. You can easily raise your Rev Limiter by navigating to “Setup Menu → Limits & Protection → Limits & Fallbacks” and then changing the value for “RPM Hard Limit(RPM)”, by default this value is set to 6500 RPM.

5. The Throttle Is Way Too Sensitive, can I change this?

- a. Yes, follow our “Throttle Progressivity Adjustment Guide”
- b. Add some Twist Grip Dampening under “Sensors Menu → Twist Grip Sensor” and adjust the “TGS Dampening” field. Note: .01 is the most amount of dampening possible and 100 is equivalent to no dampening. .09 is usually a happy value to start from.

6. Will I need a dyno tune after installation, or is there a stock map?

- a. Yes, the ECU comes with ready-built base calibrations. Depending how heavily modified your bike is (exhaust, cam, intake, boost, etc.), a dyno tune or professional tuning is highly recommended to maximize performance and reliability. It supports live tuning, so adjustments are possible after initial mapping.

7. Does Impact ECU compensate for changing altitude / environmental conditions?

- a. Yes, it has built-in barometric compensation so the ECU can automatically adjust fueling based on elevation changes. This helps maintain proper air/fuel mixture when riding through mountains or varying altitudes

8. Is Impact ECU Capable Of Running A Boosted Engine?

- a. Impact ECU is extremely capable in boosted applications. It supports advanced boost control strategies such as electronic boost control, multiple MAP sensor configurations for higher boost levels, and gives the tuner full control over fueling and ignition under boost.

Because Impact ECU was designed specifically around the unique behavior of odd-fire V-twin engines, it delivers stable drivability, accurate fueling, and the flexibility needed for everything from mild street builds to high-horsepower turbo and supercharged combinations.

