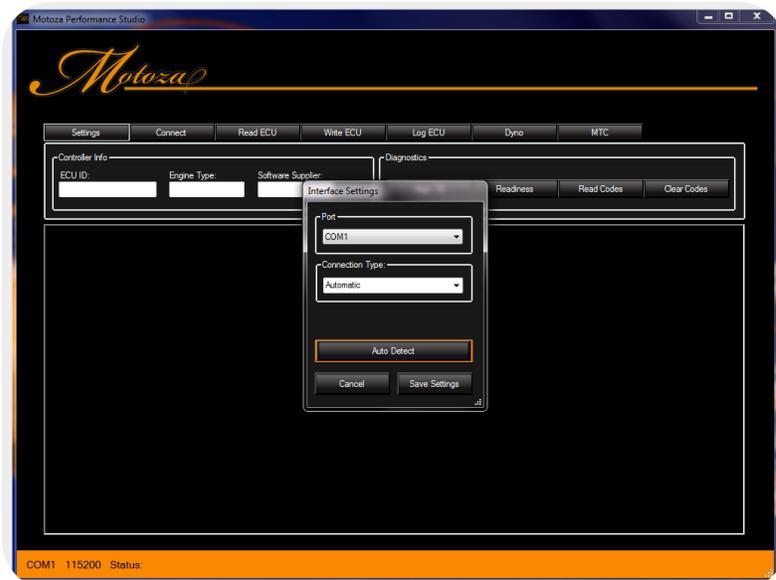


## SETTINGS

The Settings tab contains several settings for the interface that affect how it communicates with the ECU. Before Motoza PS can connect to your vehicle the interface settings need to be setup. In most cases this can be done by clicking settings and selecting “**Auto-detect**”.

The software will scan through the available ports for a few seconds and should return with Interface found. Once the interface has been found click “**SAVE**”.



The settings are saved to the user account and this process does not need to be repeated the next time Motoza PS is used. **If Auto detect cannot find the interface then please refer to the troubleshooting guide.**

An option for connection type can also be found under interface settings. The default connection type of automatic works well with most vehicles. In some cases it may be necessary to manually select a connection type to improve connection with the ECU.

## CONNECT



Connect establishes a direct connection between the Windows device and the vehicle's ECU. Clicking "**Connect**" launches the connection dialog which gives a brief description of the connection status while making a maximum of 5 attempts to connect with a supported ECU.

The connection process varies a little for different make/model ECUs, trying different connection methods under "**Settings**" → "**Connection Type**" may improve connectivity to a specific ECU.

Please contact [support@motozaperformance.com](mailto:support@motozaperformance.com) for vehicle specific settings if you are experiencing difficulty connecting.

Once a connection is established with the ECU the connection tab will show some basic information about the controller it is connected to, this includes the ECU ID, the type of engine, and the software supplier if applicable.

### Diagnostic Features on the Connection Tab:

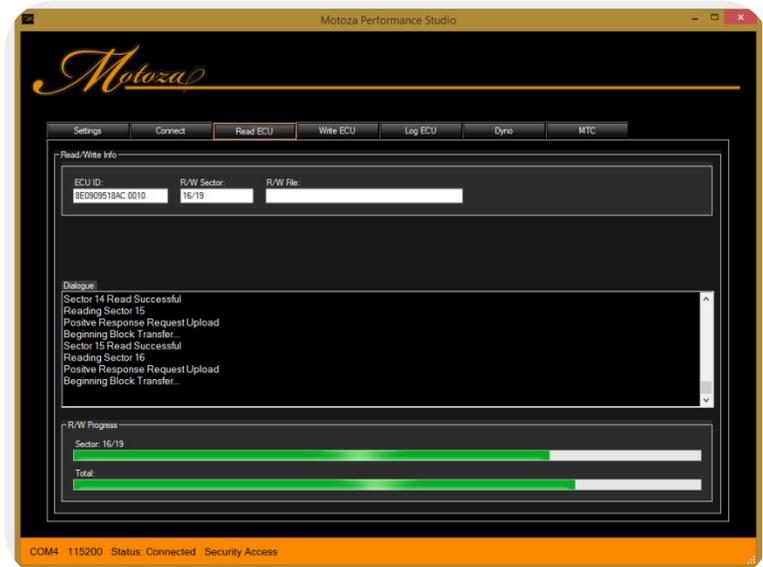
There are some helpful diagnostic features available on the connect tab as well. "Read Codes" retrieves all fault codes from the ECU and displays them with a brief description of each fault and "Clear Codes" resets the fault codes, clearing codes also has the effect of resetting adaptation channels and readiness monitors.

"Readiness" retrieves the readiness status of the vehicles emissions monitoring devices and may be helpful in determining if a vehicle is ready for testing. There are two conditions reported, either passed or failed/incomplete. If a test has failed an associated code should be stored in the ECU.

On some supported ECU's it is also possible to perform a TBA Throttle Body Alignment.

## READ ECU

Reading the ECU uploads a complete copy of the ECU's operating system to your PC. The ECU can only be read with the Key ON and Engine OFF. This reads the entire ECU and is a longer process than writing the ECU. Each sector is read out and when the read is complete the user is prompted for a filename to save to. The file is saved as a **.mtz file**, it can be written back to the ECU at any time in the future if the ECU needs to be returned to stock for any reason.



If this is the initial read out of the ECU the saved file should be uploaded to [members.motozaperformance.com](http://members.motozaperformance.com) to begin the tuning process.

## WRITE ECU

Writing the ECU is the most sensitive operation and special care should be taken when writing to insure that the vehicle's battery is in good condition, and accessories which can cause unstable voltage such as audio equipment should be off. We recommend the use of a **battery tender** when writing the ECU to insure stable voltage.

The write process is very similar to the read process. The ECU can only be written with the Key ON and Engine OFF. The write routine will only write sections of the ECU which have been changed, it is considerably faster than the read process.

When the writing process begins the user is prompted to select the file to be written. **Files must be of the .mtz format**, by default Motoza PS will look for files to be written in the folder: **C:\Motoza PS\My ECU**. This is just a recommendation and files may be stored anywhere on the machine being used.

Once a file is selected it will begin transferring it to the ECU, during this process a series of progress bars report the status of the transfer. When finished the user will receive an ECU write successful message and be prompted to switch the ignition to the off position and wait for a period of at least 5 seconds before switching the key back on and starting the engine.

## LOG ECU

The Log ECU tab provides several ways to visualize live data from the ECU and to record a log of this data. Motoza PS uses a proprietary protocol to allow much higher sampling rates than standard tools allow. The user can choose which variables to display on screen as well as different styles such as plot, radial gauges, or simple numeric display. When recording a data log all of the data is recorded to the log file no matter how the user chooses to display the data on screen.

To start a data log click the record button  at the top right of the screen.

A file dialog opens and the user is prompted to enter a filename to save log data to. Simply enter a filename and press OK. The software will then setup the high speed session and start logging. With some ECU's it may take a few seconds to establish the higher speed session before you see data streaming on screen.

To perform a basic log for tuning the record and stop buttons are all that is needed. The log can be paused at any point by clicking  and then to resume logging click 



For an initial data log, it is recommended to allow 20 min for the vehicle to adapt before logging any data. A log should be performed to make sure things are running as expected. The best way to log initially is mixed mode driving, providing a little bit of idle, part throttle, acceleration and deceleration about 15 mins of logging works well.

Logs are saved as **.csv** files, they can be opened and viewed in many different applications such as Microsoft Excel and Google Docs/sheets. All units in the data logs are in metric.

There is a standard set of 40 variables available in the high speed logger and they are split into 4 groups of 10. For quick reference the user can select from sets of Standard, Fueling, Boost, and Ignition variables. There are a lot of options available for plotting specific variables that are helpful for visualizing the data in real time, for example the scrolling graph of Boost request and Boost actual can be very useful in diagnosing boost issues.

The legend of the graph is interactive; when the visual style is set to graph specific variables can be added or removed from the graph by clicking on each variable in the legend.

## ROAD DYNO

The road dyno feature estimates wheel horse power and torque, the calculation is based on the change in kinetic energy of the vehicle and it is independent of the ECU/software. The road dyno acts as a filter for the regular logger and only records data at wide open throttle. To use the road dyno click the dyno tab, and press record. A file dialog opens and the user is prompted to enter a filename to save the dyno to. Simply enter a filename and press OK. The software will then setup the high speed session just as it would for logging and when ready the screen should read **Awaiting WOT (Wide Open Throttle)**.





The dyno will not record data until it senses that the driver intends to start a pull, to start a pull the pedal must go to 100% and remain at WOT for more than a second. Once this happens it begins recording, when the pedal is lifted the dyno will display the wheel HP/TQ plotted against the rpm range of the run.

After a run is recorded the dyno automatically returns to the Awaiting WOT mode and the driver can do another run. Each run is recorded into the file and labeled as run 1, 2 etc.

If you press pause or stop it will exit this mode and you will see the most recent run displayed cleanly.

## Improving Dyno Accuracy

It is best to pretend you're on a dyno start at low rpm in 3rd, slow roll on and go as high as you're comfortable. To improve accuracy it is best to use a higher gear such as 3rd or 4th, level ground is most accurate as the calculation is based on the weight of the vehicle and its acceleration, it will read low going up a hill and high down a hill. To make reasonable comparisons the same stretch of road should be used ideally.

The software retrieves a generic weight for each model, it is probably close but with different years/options it is an estimate and the more accurate the weight the more accurate the readout. By default the road dyno uses 200lbs for ballast which accounts for the driver and a few items in the car.

The options button will let you change the weight, add/remove variables, change X axis type: RPM, Speed, Time, select which run to view, change series colors and min/max axis values, etc. You can also open and view a previously recorded dyno log.

## MULTI-TUNE CONTROL

The MTC feature retrieves a list of available tunes from the ECU and displays a brief description of the available tunes with the currently selected tune highlighted. There are 4 calibrations in an MTC file, select the one you want to switch to and press Save to switch to it immediately.

For example [Economy, 91, 93, and 100] generally each tune has progressively more ignition/boost. Economy can be run on 87 octane if you like and is similar to the OEM levels.

*\*It is recommended to switch octanes when the tank is nearly empty, at 1/8 full or less.*

*\*For safety you cannot switch tunes while the vehicle is in motion, but you can switch with the engine running.*

*\*After programming the ECU will default to tune #1 you will notice lower timing and boost. Once a selection is made it will stay selected when you switch the car on/off. If you disconnect the battery it will reset to the default.*

## USER ADJUSTABLE LAUNCH CONTROL

### User Adjustable Launch Control is available on MTC tunes

- Below the available octanes you will find the Adjustable Launch RPM along with the (+) and (-) buttons. The default launch RPM is set at 3500. By clicking on either (+) or (-) you can go higher or lower in RPMs.
- Press Save and the new launch rpm will be stored.





## USING ANTI-LAG LAUNCH CONTROL

The anti-lag system causes fuel to burn in the exhaust manifold and spin up the turbo. This means combustion will be happening in the exhaust manifold/turbo/exhaust rather than just in the cylinders. A lot more energy will be going into these exhaust components as heat than normal and they will heat up extremely quickly. Remember the motor is water cooled, the exhaust manifold is not!

Do not use this feature on a cold motor, you can minimize the risk of damage to the manifold/turbo by letting it be at operating temp to start, and by only engaging the feature long enough to build boost and launching ASAP. Sitting for extended periods of time can overheat things.

**\*Anti-lag can build boost pressure at a stop with no physical load on the engine. To engage it the following have to be true:**

- Vehicle at a stop.
- Clutch pedal is engaged
- RPM is greater than threshold can be changed (3500 default)

At a stop, clutch pedal down, bring up the revs and it will start cutting ignition to hold the rpm close to 3500 while spinning up the turbo, keep an eye on your boost gauge, the rpm can be adjusted if it is too much or too little. The sound is pretty epic, be prepared it is very loud.

**\*WARNING\***: Anti lag is very hard on the exhaust/turbo components, as well as the drivetrain when the clutch is released. \*Anti lag will destroy a catalytic converter and should never be used with one.