GEN4 PRO XTREME BigComm Pro V2.4 Firmware Updates

www.**Bigstufftpm**.com

Revision 2.0 | September 29, 2025

This document contains important software features updates for firmware version 2.4 The firmware update and instructions can be downloaded from the Bigstuff website under the software downloads section. You can also click this link to access the webpage directly. This document will show previous firmware updates which are already included in this current update.

https://bigstufftpm.com/gen4-firmware/

The firmware updates for this version are:

1. Updated Shift Light Output Strategy
2. Add pulse time to Generic Port Editor
3. AFR Safety Configuration
4. Update CAN Dash Data
5. Add Min/Max TPS% to CO2 Boost Controller
6. New 3/2/Half-Step Rev Limiter Error Table
7. Erase Firmware and Factory Open Feature files from SD card browser
8. Password Protect Menu's
9. Misc Firmware Updates

1) Shift Light Output Strategy

To access the shift light programming go to the 

System section in the project and select operating configuration. The shift light output has been updated so that it works on each gear calculated from the ECU.

In this example of the Shift Light Parameters there is a launch delay which can be configured on the release of the 3-Step. Each gear has an Engine Rpm shift light on output and a pulse time. In this example on the 1-2 gear shift the shift light will output at 4000rpm and the light will stay on until you fall below the 1-2 shift rpm setpoint. The pulse time indicates that no matter how fast your engine falls below 4000rpm the shift light will pulse for a minimum of 1 second. The ECU will then calculate your in 2nd gear and now the shift light will output for the 2-3 gear shift. All subsequent gears will operate in the same fashion.

NOTE To adjust how the gear is calculated in the software navigate to the System section and select FSL Configuration.

If you are not in the Gear_RPM mode then you must select it make the programming change and THEN GO BACK to the current FSL Index Mode you are using. IF YOU DO NOT GO BACK TO THE CURRENT MODE YOU ARE RUNNING YOUR RISK DAMAGING YOUR ENGINE. PLEASE NOTE THIS VERY IMPORTANT STEP. MOST USERS WILL BE IN

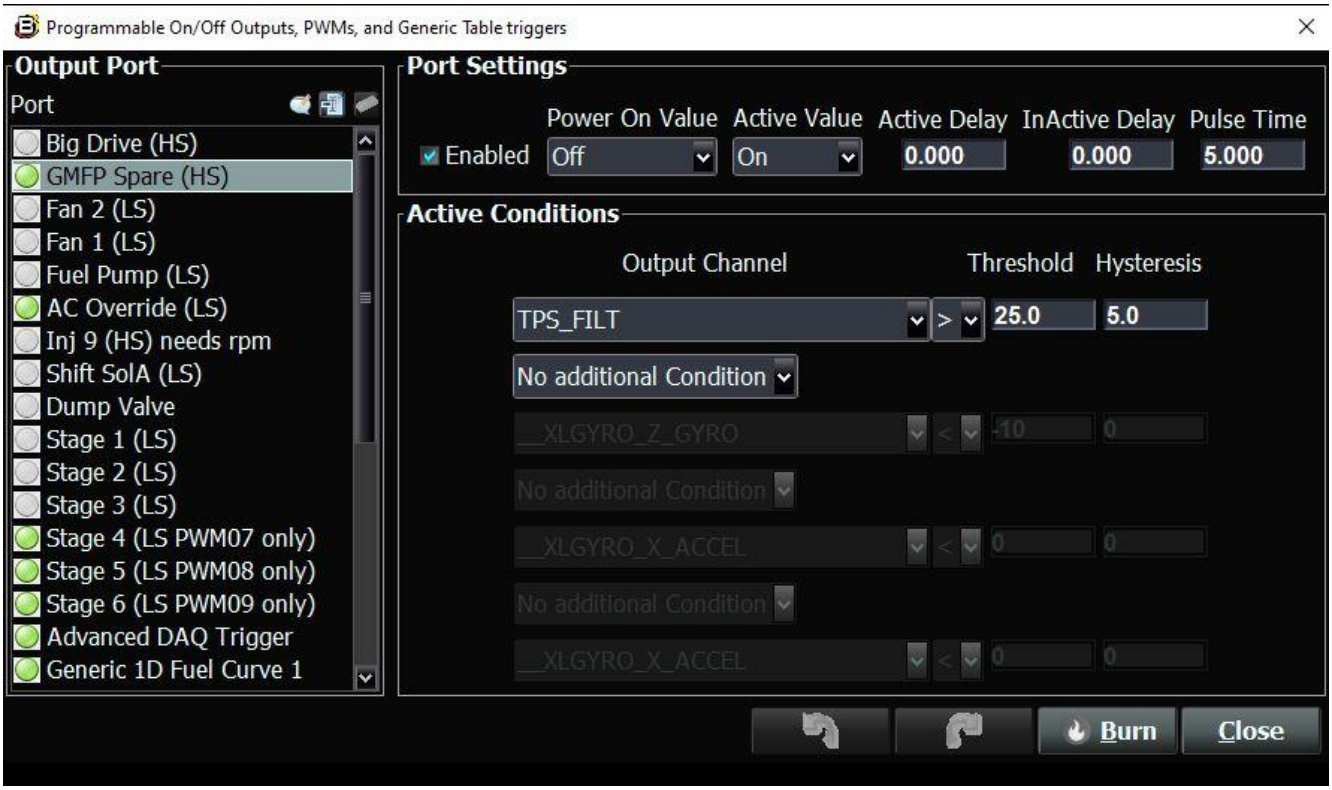
BCP MODE SO ENSURE THAT AFTER ADJUSTING THE CORRECT PARAMETER YOU GO BACK TO THE BCP MODE AND HIT BURN ONCE COMPLETE.

The gear calculation is in the FSL Index Mode called Gear_RPM. If you are already in this mode then you will adjust the parameter called **RPM drop in 50mS for Gear Shift** up or down to calculate which gear you are in. If the next gear is not getting calculated on the engine drop you will ***lower*** the number in 25 digit increments until it works. If the gear calculation is showing the gear shifts climbing while you aren't actually changing gears ***raise*** the number in 25 digit increments until the gear calculation is correct.

2) Add pulse time to Generic Port Editor

To access the Generic Port Editor programming go to the 

System section in the project and select Generic Port Editor.



In this example every time the TPS% goes above 25% the GMFP Spare (HS) Fuel Pump output will turn on for 5 seconds and then shut off. It will only be allowed to turn back on once the hysteresis has been met on the output channel. In this example with a 5% hysteresis the TPS% will need to drop below 20% to reset with a 5% hysteresis.

3) AFR Safety Configuration

To access the AFR Safety Configuration go to the 

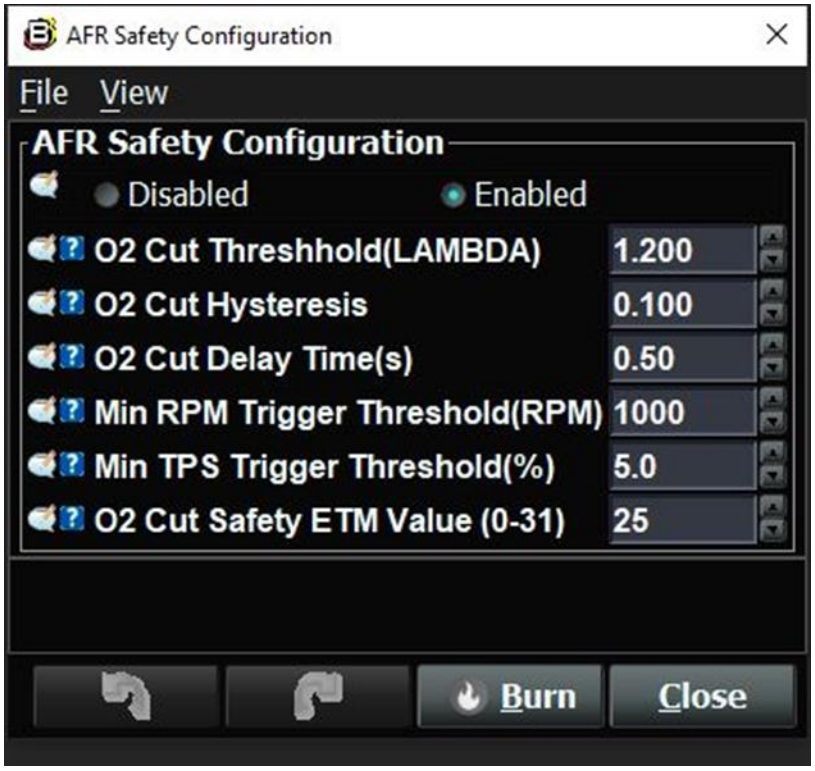
AFR Section in the project and select AFR Safety Configuration. The AFR Safety Configuration can be used in a variety of ways and can be programmed to be set to trigger on Lambda or AFR values.

See the following AFR Safety Configurations below:

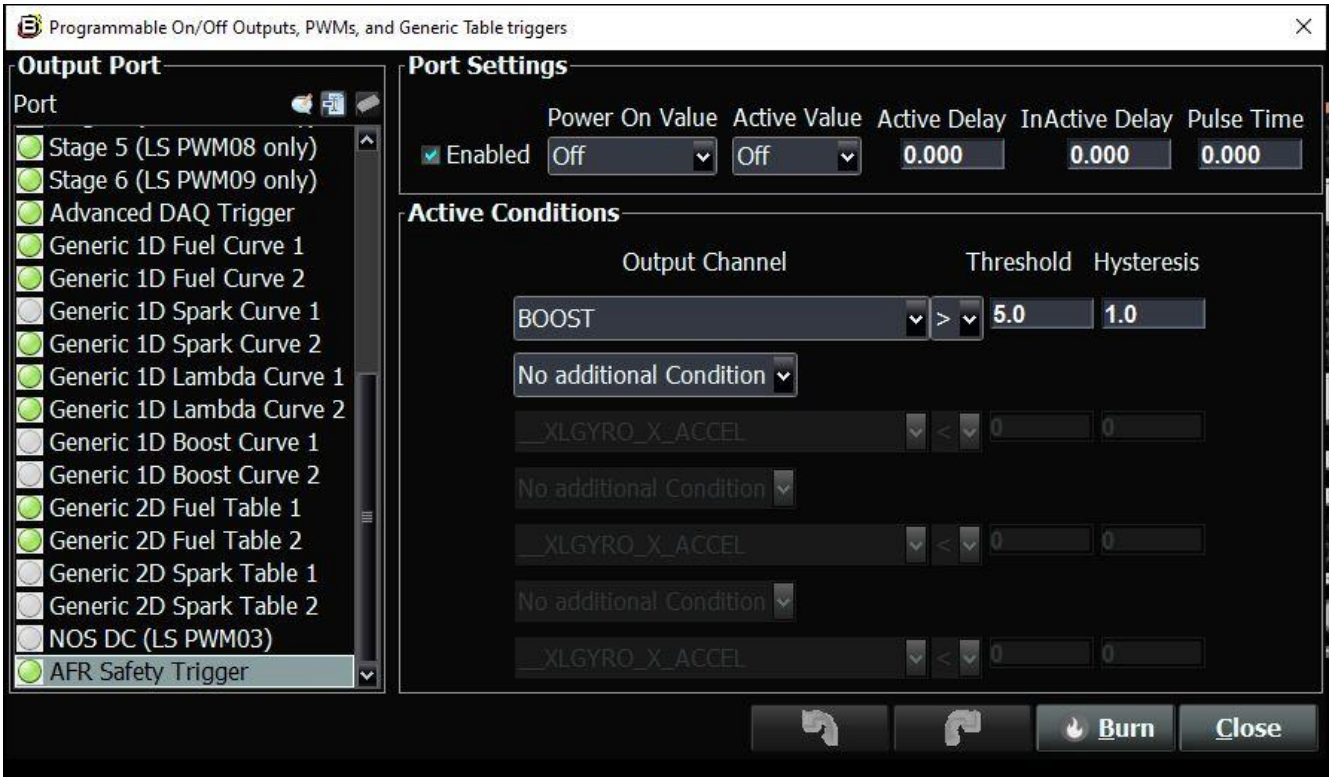
1. Single O2 sensor whether Bosch/NTK
2. Dual O2 sensor whether Bosch/NTK
3. 8 Channel O2 Sensor

The AFR Safety can be used to activate an engine rpm limiter based on any combination that you desire. To enable the AFR Safety click on Enabled. You will then configure the following settings:

1. **O2 Cut Threshold** – The Lambda or AFR threshold that will be used
2. **O2 Cut Hysteresis** – The amount the Lambda or AFR will need to drop below the threshold to turn the safety off
3. **O2 Cut Delay Time(s)** – The amount of time that the safety will be delayed before it turns on. This is helpful as the O2 sensor can see lean spikes in which there is no harm as that is normal operation.
4. **Min RPM Trigger Threshold** – The minimum engine RPM to activate the AFR Safety
5. **Min TPS Trigger Threshold** – The minimum TPS% to activate the AFR Safety
6. **O2 Cut Safety ETM Value (0-31)** – The amount of Engine Torque that will be pulled the ignition cut that will be applied. Do not go lower than 20 for an ignition cut value as you will not need to go any lower.



The AFR Safety can also be used in conjunction with the Generic Port Editor to enable it on any conditions that you want to program. In this example the minimum conditions must be met in the AFR Safety configuration window and any additional parameters you want to add from the Generic Port Editor. In the example below we have added that the engine must be making over 5 pounds of boost as well in order to enable the AFR Safety.



The AFR Safety will be displayed in the logger whenever it is activated. If you are running in the Dual O2 sensor mode each bank will be active.

If you only have a single Bosch O2 sensor the right bank AFR safety will trip when the safety is activated.

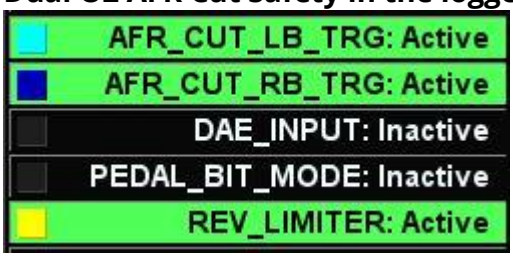
If you only have a single NTK sensor the left bank O2 sensor will trip when the safety is activated.

If you have dual sensors in your exhaust, you can have only one bank trip or both at each time. For example, if one fuel injector on the right bank stops flowing fuel the O2 reading will go extremely lean and the AFR safety will trip on that bank only and the datalog will show that one bank safety tripping only. This can greatly decrease your troubleshooting time to find an issue on your engine.

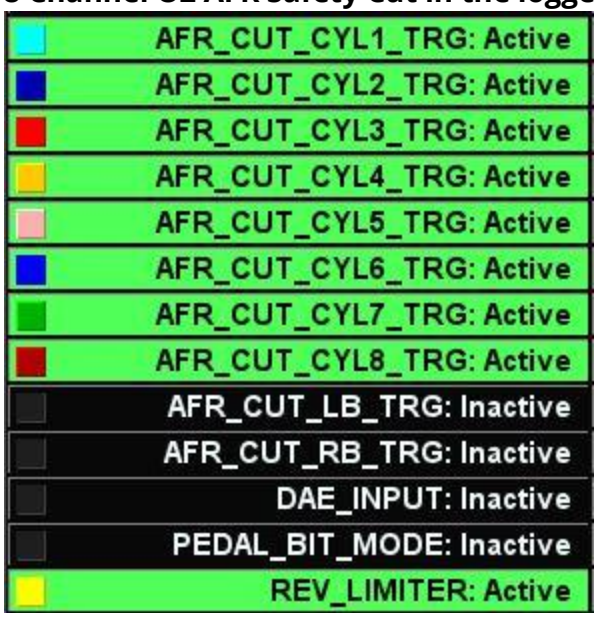
If you are in IC_RIM mode chosen under the Number of O2's you will have all 8 safeties available to use. Each cylinder O2 sensor can be read independently to trip when the safety is activated.

Anytime a AFR safety is activated the O2 sensor that triggered it will show active and the RevLimiter will show enabled.

Dual O2 AFR Cut Safety in the logger



8 Channel O2 AFR Safety Cut in the logger



4) Update CAN Dash Data

The GEN4 ECU has an open CAN protocol that we provide a .DBC file for on our website under the Software Download section. The baud rate for our CAN is 500kb and any open source device can get our information such as dashes, power management units, etc. The CAN port connection on the main engine harness is where the CAN +/- wires are landed.

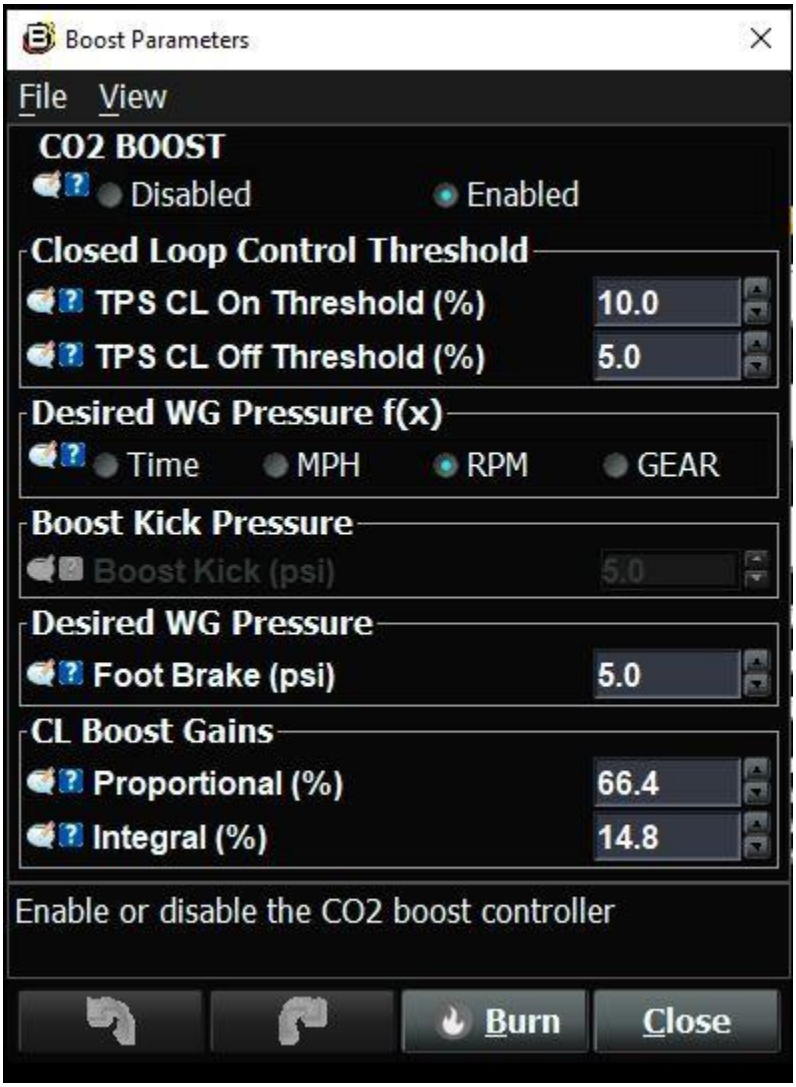
The following data points have been added to the dash as well as our CAN data:

1. Fuel Injector Duty Cycle (0-100%)
2. E85 Percentage (10-85%)
3. ETM Torque Value (0-31)
4. Fan 1 Output (Off/On)
5. Fan 2 Output (Off/On)
6. High Side Fuel Pump Command (Off/On)
7. Low Side Fuel Pump Command (Off/On)
8. Gear (1-5)
9. IAC Steps (0-250)
10. Fuel Injector Gross Pulse Average (0-55)
11. Laser Height Sensor
12. MAP (kPA)
13. NOS Bottle Pressure
14. Pan Vacuum
15. RPM Wheel Spin
16. SR2 Timer
17. Three Step Input (Off/On)
18. Turbo Back Pressure
19. Right Front Shock
20. Right Rear Shock
21. Left Front Shock
22. Left Rear Shock
23. Transmission Oil Temp
24. Transmission Line Pressure
25. Turbo Back Pressure
26. Wastegate Pressure

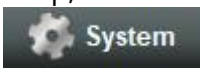
5) Add Min/Max TPS% to CO2 Boost Controller

The CO2 Boost Controller will need to meet a minimum TPS% threshold to activate and run in closed loop. Once this threshold has been met the CO2 boost controller can function.

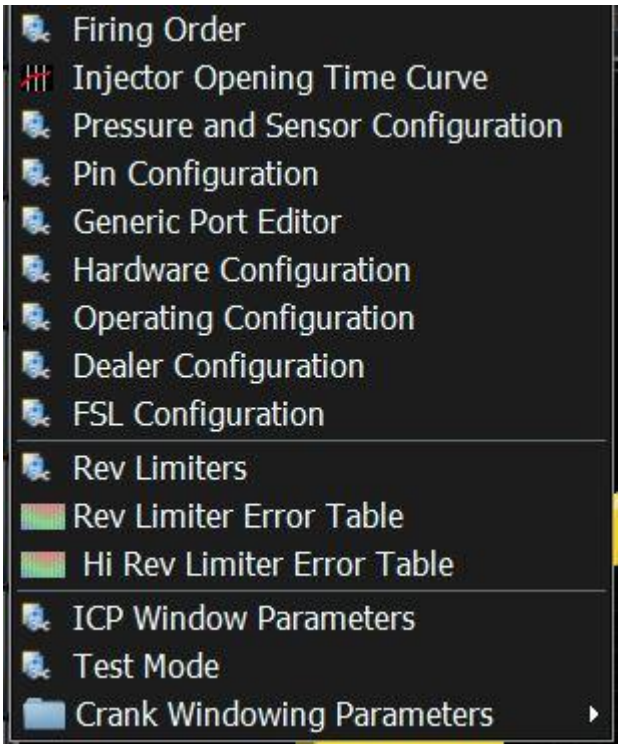
For this example the once the TPS position reaches 10% the boost controller will be allowed to function. Once the TPS% goes back below 5% the CO2 boost controller will be disabled.



6) 3/2/HalfStep separate RevLimit Error Tables

There is now a separate table for the engine rpm rev limiters for the 3-Step, 2-Step, and Half Step and the Hi Rev Limit. The Rev Limit Error Tables have now been moved to the 

System Section under Rev Limiters. Having the adjustability to tune how hard the ignition cut hits on the 3-Step, 2-Step, and the Half Step is the purpose of this table. Most users will not have to adjust these tables. Please contact Bigstuff for more information on these tables.



7) Erase Firmware file and factory option file from SD Card Browser

During the firmware update and installing a new factory option file the SD card is used to install them on the ECU. When the updates are complete the files can now be seen from the 

SD Card Browser under the Data Logger section and erased using Bigcommpro.

To erase the GEN4.BSF firmware or xxx.FOF file follow these steps:

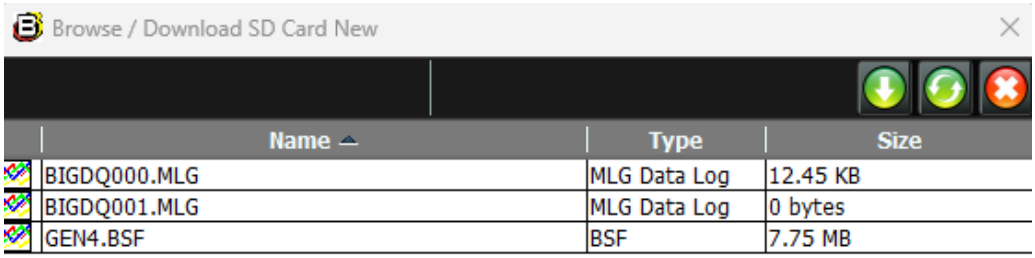
1. file navigate to your current project go online with your ECU. Open the Data Logger 

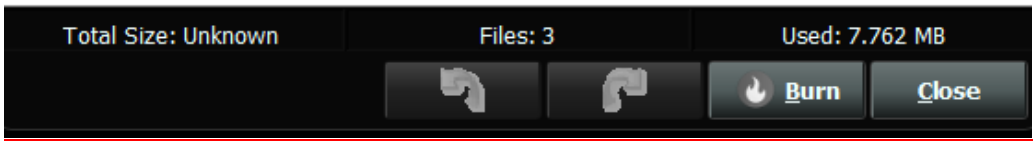
and navigate to the SD card browser.

2. Once the SD Card browser is open click the green button with the two arrows going in a circle to refrustesh the files on the SD card. At this point you should see the GEN4.BSF or xxx.FOF file listed along with others.

3. Left click on the GEN4.BSF or xxx.FOF file to highlight it and press the red X button. BCP will confirm you want to erase the file and click yes.

You have successfully deleted the file from your ECU.





8) Password Protection for Menus

You now can now add password protection to the following menus:

1. System
2. Fuel Settings
3. AFR
4. Ignition Settings
5. SR2 / ETM
6. Boost CO2
7. Boost GN
8. Generic
9. Nitrous

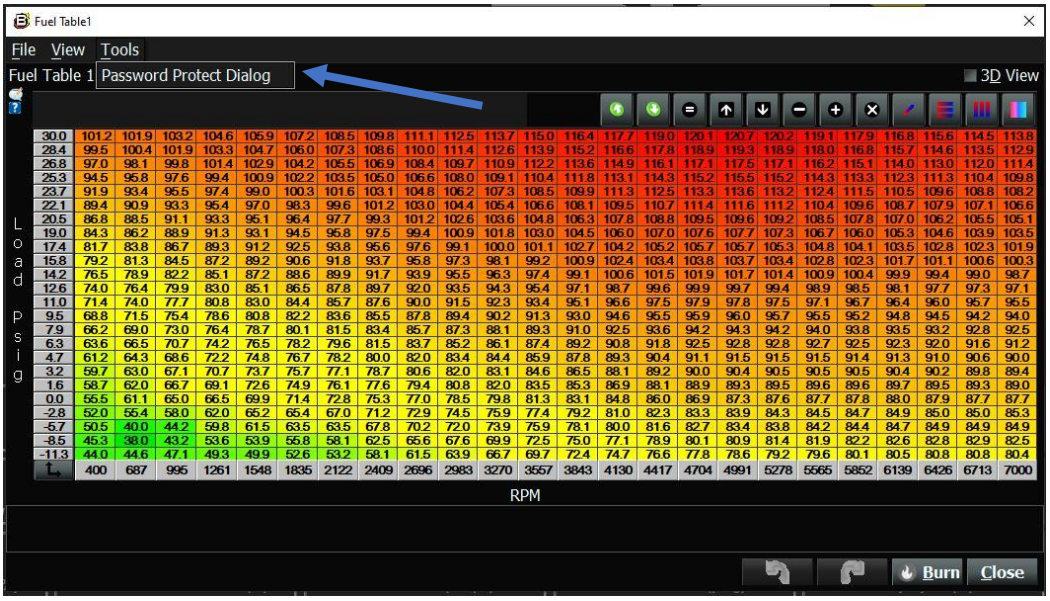
In each of these menus every table, curve or dialog can have a password assigned to it. ***If you assign a password to any table, curve, or dialog in any of the menus listed above ALL table's, curve's, and dialog's in that menu will now become password protected.***

It is always recommended to save a calibration before you start adding any password protection to any menus. The reason is that if you lose your password and need to reinstall firmware you will need to load a calibration where there are no passwords saved in your calibration. If you

load a calibration where there was a password stored then you will then need to enter a password to access that menu.

Below is an example of how-to setup a password on Fuel Table 1. The same process applies to all tables, curves and dialogs.

To password protect Fuel Table 1 open the Fuel Settings menu and select Fuel Table 1. Once the Fuel Table 1 is opened left click on Tools and select Password Protect Dialog



Next enter your password. We will use abc123 in this example.

Click OK and the password is now saved to your calibration. This process can be applied whether you are online or offline with your ECU. Close out the fuel table and the password protection is now complete.

To access any table, curve or dialog now in that menu you will need to enter the password in order to open. Once you have entered the correct password the tables, curves, and dialogs will all have access.

To change a current password to something else open the Tools section to access the password menu and select ***Change Dialog Password.*** Enter a new password for that menu left click on OK. The password has now been changed to the updated password.

To clear the password from the menu click on the Tools section and select ***Clear Dialog Password***. The password will now be removed from the Menu.

9) Misc Firmware Updates

1. Update boost over rev table to work with Touch Screen Dash
2. Remove cylinders 9-12 from datalog and replay with base firmware
3. Update Bigstuff MAP sensor names
4. Revlimiter data log data point will now show anytime the revlimiter is active now including safeties or offsets.
5. Update CAN EGT sensor scailing
6. Remove ODT error messages when starting a log from the laptop

BigcommGEN4Pro Software Updates:

2024-06-07 - Released 3.2.03.03 to Beta as an auto update

- Added DAQ / ODT Reports for XCP.
- Added ability to unsubscribe all gauges not on the current Dashboard Tab.
- Fix Table tail getting highlighted on the end of the tail instead of current record on the graphing & logging tab.
- Explicitly set font to each component in a Settings Field incase it was retrieved from Cache.
- Changed to Warning: blockingFactor smaller than ochBlockSize, but ochCommand does not support blocking.
- Password protection on for tuning panels in dialogs, diff reports TuningViews and logging tab.
- Added Password caching and a user adjustable timeout period.
- Suppress display of CurrentTune in status bar. Instead display the last purposely loaded tune file until modifications are made to it.
- Added Undo/Redo/Burn buttons to the Logging Tab.
- Added support to always prompt to save tune.
- Fix - If gauge units are empty, units from right click menu were not applied.
- Save increment amount on 1D tables.

2024-05-01 - Released 3.2.03 promoted to stable and beta as Installer and auto update.

2024-04-29 - Released 3.2.02.04 to Beta as an auto update

- Added Drag and Drop support.
- Fix for password protected dialog vulnerability.

2024-04-25 - Released 3.2.02.03 to Beta as an auto update

- Table Y Axis KPa to PSI calcs allow for a relative baro.
- Finished, display Curve Graph, without the graph with suppressGraph in Curve Definition.
- Update Main Start Page to display current version
- Improved hyperlink function on Setting Field labels.
- Fix Auto Digits getting set over-riding log defined ini.
- Fix Save Restore Point on Connect, actually changing Save on Tune Save.
- Rolled back to jssc 2.9.4 as 2.9.6 doesn't work on some older Raspberry Pi and XP OS's
- Fix hard loop on failure to open Datagram
- Prevent multiple error messages when DataGram Fails.
- Cache DataLogField Mapping
- Automatically swap back to oracle java on Windows XP after Auto update.
- Added support for defining read/write commands per page instead of in long array.

2024-02-29 - Released 3.2.00.00 promoted 3.1.09 to stable as Installer. Auto update will follow 1 week later

2024-02-26 - Released 3.1.09.00 to Beta RC1 as Installer and auto update

- Supports password protection on settings dialogs. User provided password.
- Password caching. Timeout can be set in TunerStudio.properties using keyword: userPasswordTimeoutPeriod=600000
- Removed GPS error messages that could keep repeating.
- Updated jssc.jar to 2.9.6 to support ARM64
- Added support for white spaces in inc file names.
- Added scroll bar to Action Management for low res screens.
- Fix validation of X Axis on re-bin operation
- Added addition support against project loading getting hung when D2XX was selected on Windows.
- Fix Two Point Linear calculator not coming up from Generic ports dialog.
- Placed hierarchy of #include files from ini. Install/inc, cache/inc, Project/inc
- Added validations to the thermoster table generator
- Added enable & visibility support for SettingSelector
- Added SaveTune Action
- Added support for pushing ini and inc files without a complete Auto Update
- PortEditor added support for custom attribute arrays
- EventMonitor evaluates when AppEvent channels change while offline.
- Add support for Dash Echo CAN devices.
- Fix not logging CAN devices if log started while offline.
- Updated exe to support JRE change.
- Updated JRE to Open JDK.
- Workaround SD log problem with bit fields double mapped in ini file to different data types.
- Added Start & Stop Auto Tune Actions
- Added table color min/Max
- Write Timeslip data to mlg log files.
- Added 330ft and Density Altitude to Time Slip Dialog
- Added Time Slip Editor.
- Auto zero start time log based on Launch Timer
- Added Ukrainian language support. Corrected translations are currently underway.
- Advanced dynamic table resizing ground work.
- Added timeslip data to Graphing and logging view.
- Added support for transferring a Device.
- Added a toggle function to math parser.
- Issue warning if no panel constraint is defined on a border layout dialog.

- Issue warning if negative hard number value set in ini for a Constant.
- Will use JSSC 2.8 library for Windows XP
- Fix Prevent Sleep

FREQUENTLY ASKED QUESTIONS

• What does working "On line" vs. "Off line" mean?

-Working "Off-line" = The BigStuff ECU is not powered up (PC Only). Working "On-line" = The BigStuff ECU is powered on, the communication is connected between the GEN4 ECU and a PC, and the two are communicating with each other

• Should I use the camshaft position input (cam sync) with my distributor based GEN4 system?

-Without the camshaft position input (cam input connector in the main wire harness) hooked up, the GEN4 system still provides sequential fuel injection and individual fuel control per cylinder, but injector phasing (where the fuel is injected) and individual spark control will not function.

• How can the GEN4 system provide sequential fuel injection and individual fuel control per cylinder without the cam camshaft position input hooked up?

-When the engine starts cranking over, the GEN4 ECU begins firing the injector drivers, assigned to each injector, in the firing order inputted into the software. What the GEN4 system cannot do without the cam camshaft position input hooked up is to determine where to inject fuel (the position in crankshaft degrees, relative to TDC, for each cylinder).

• At what injector duty cycle % are my injectors considered out of control, or static?

-Loss of injector control does not occur at 100% duty cycle, but at approximately 85% duty cycle. At 85% duty cycle the injectors are most likely not opening and closing in a controlled fashion.

-This condition is termed "static" (vs. dynamic) control. An example why this condition is undesirable is if the GEN4 ECU demands more fuel (demanding a larger pulse width) and the injector is already static. The only way to move more fuel through the injector would be to increase the fuel pressure. Increasing the fuel pressure at the 1/8th mile marker is not possible, so things go bad quickly.

-Also, teetering on and off at the static point is also undesirable. Lastly, running the injectors drivers static for long periods of time can damage them.

• How do I set up my ignition system with the GEN4 system?

-For more information on ignition system setups, beyond what is available in this manual, go to the How To/Help section on the Bigstufftpm website, and then Ignition System Setup Tutorial. The link is: http://bigstufftpm.com/pdf/Ignition%20Guide%20rev%201.2.pdf. There are nine (9) ignition system setups outlined. There is also information on the setting up the Ford TFI, GM HEI, GM Opti-spark & MSD8 ignition systems in the How To/Help section of the website.

• Where can I find wiring harness information on the Bigstuff power-train system and optional systems?

-Information on most of our wiring harnesses is available on our website at www.bigstufftpm.com.

-Go to the GEN4 section on the website and under the GEN4 PRO XTREME menu will be more information. The link is: http://bigstufftpm.com/gen4/

• My engine will not start. What should I check?

-Make sure the harness side header connectors, interfacing with the GEN4 ECU, are attached and tightened to no more than 15 – 20 inch lbs.

-Make sure the battery voltage is at, or above, 12V during cranking. Low battery voltage conditions must be fixed before trying to start the engine. Battery voltage (especially during cranking) is even more important with coil-on-plug applications.

-Make sure you can see an RPM signal in the software or dash. While turning the engine over, you should see at least 100 – 150 RPM. If no RPM signal is present, check that the crank input (crank trigger or distributor) signal wire is connected to the red wire in the BS3 "Crank" connector. Swap the 2 wires and try again.

-For distributor ignition based applications, make sure the BS3 points wire is connected to the ignition system points input terminal/wire. Applying 12V directly to the BS3 points wire will immediately damage the GEN4 ECU!!

-For COP engines (LSx and other standalone COP engine) the cam input cannot occur at the same time as the crank input!!! If this is the case, the engine will not start. The cam synch pulse must occur before a crank pulse. Ideally, 10* before the crank pulse.

-For more information on ignition system setups, go to the How To/Help section on the BS3 website, then to Ignition System Setup Tutorial.

-With all coil-on-plug engines, make sure the coil ground eyelet is securely fastened to the cylinder head or engine block. No other grounds locations should be used.

-The ECU may be in Clear flood Mode. Make sure the TPS sensor reads near 1-2% when the throttle is closed and near 100% when fully opened. If it reads near 100% when closed, the ECU is in clear flood mode and is not injecting fuel. Swap TPS pins A & C in the TPS connector.

Make sure the crank sensor is connected.

-The LS1 Cam sensor connections are: **• A – Signal • B – Ground • C – 12V •**

The LS2 cam sensor connections must be (terminals A & C are swapped): **• A – 12V • B – Ground • C – Signal**

• My engine timing does seem right, what should I check.

-Make sure the firing order is correct.

-Both the Bigstuff GEN4 main wiring harness and the MSD ignition system must be connected directly to the battery!! If not, ground loop issues are likely to occur.

-Make sure your pulses per rev in the Operating Configuration table is correct for your application. For example, a four (4) magnet MSD crank trigger setup should have a value of 4.

• I can't get my LSx engine started.
-I'm using an LS2 sensor in the front of the engine.
-Swap pins A & C in the cam input connector around. My TPS sensor reads 100% when the throttle is closed and 0% when the throttle is fully opened. Swap the wires A & C in the TPS connector. The engine may not start since the ECU senses that the Clear flood Mode has been invoked

• If I am tuning in Alpha/N mode (Hardware Configuration, then Control Algorithm) can I use my 1 Bar MAP sensor for barometric compensation?
-Yes, the automatic barometric compensation is hard-coded in the ECU. Leave the MAP sensor vacuum port exposed to the atmosphere. Do not plug the MAP vacuum port to the intake manifold.

• What do I need to do to make sure my 3 step works correctly?
-A clean 12VDC must be applied to Header 2 W1 meaning a relay with only 12vdc. Do not use the same 12VDC feeding the transbrake solenoid as flyback voltage from the transbrake releasing can damage the ECU!
-Confirm the 3 Step settings in the System Menu / RevLimiters are configured correctly. The TPS% On threshold must be higher than the Off threshold.

• I do not think my injectors are pulsing. What can I check?
-Make sure the BS3 and MSD systems are grounded directly to the battery.
-Plug a "noid" light into each injector position in the injector wire harness. Turn the engine over and see if the light pulses for each injector location.

• I do not think my COP coils are firing. What can I check?
-Make sure the BS3 main wire harness ground is wired directly to the battery.
-Make sure the coil ground wire is grounded to the engine block or cylinder head. No other ground location will work!

• Can I use a 5 Bar MAP sensor?
-Yes, choose 5 Bar MAP sensor in the System Menu / Pressure and Sensor Configuration section.
-Be sure to cycle the 12VDC ignition on the ECU and you will need to recalibrate the fuel/afr/spark tables on this or any MAP sensor change.
- Note: The 4 BAR MAP sensor sold by BigStuff is good to 52 PSI.

• How do I know if my Bosch LSU4.9 WBO2 sensor is bad?
-First make sure the sensor to main wire harness connection is good.

• How can I check if my NTK WBO2 Methanol sensor is working?
-First check the control circuitry by disconnecting the sensor from the harness. Turn the ignition to the Bigstuff ECU on. With the engine off its best to move the O2 sensor out of the exhaust and

have it hang in the air. Go online with the ECU and navigate to the Gauge Cluster tab and go to the NTKWBO2 tab on the bottom the screen. In the upper right hand corner of the page will be LB%O2 and RB%O2 readings. Go to the AFR Menu and click on the O2 and EGT Parameters section. In the lower right hand corner turn the "Perform NTKO2 WBO2 Air Cal" to "Yes". **WARNING**! Do not hold the O2 sensor as it will start to heat up and you can get severely burned. You will see the O2% readings start to update and after about 5 minutes you should be reading about 18%-22% on either sensor. If you do not read that more than likely the sensor is defective and needs to be replaced. Contact Bigstufftpm for more details at this point. If the sensor reads fine turn the Air Cal to "Off" and turn the ignition off. Wait for the sensor to cool down and reinstall in the exhaust and you are ready to go.

- **What caused my O2 sensor to fail?**

-Being dropped
-Running leaded fuel
-Running rich at idle

- **Does the GEN4 ECU offer an auto-shift feature?**

Yes, BigStuff offers an optional transmission auto-shift feature. The system will shift up to five (5) speeds with independent shift RPM and Hysteresis points. Once the system is configured for the auto-shift feature, a wire from ECU Header 2 location, P2 must be run to the ground side of the relay.

- **What dwell times should be used with the LS1 coils sold with my system?**

With a 12V charging system from idle to approximately 4,000 RPM use about 3.0 milliseconds near idle and no more than about 4.0 milliseconds at approximately 4,000 RPM. From approximately 4,100 - Max RPM use no more than about 6 milliseconds of total dwell time at max RPM. With a 16V charging system from idle to approximately 4,000 RPM use about 2.0 milliseconds near idle and no more than about 3.0 milliseconds at approximately 4,000 RPM. From approximately 4,100 - Max RPM use no more than about 4.5 milliseconds of total dwell time at max RPM.

Bigcomm GEN4Pro Datalogger acronyms:

Point Definitions are displayed in alphabetical order and are the same for either laptop based datalogging or pulling the data from the on-board SD card.

A

AC_BUMP_ON – Air Conditioning Engine RPM increase active condition
ACCEL_X – Accelerometer X Axis
ACCEL_Y – Accelerometer Y Axis
ACCEL_Z – Accelerometer Z Axis
ACCEL_ENG – Acceleration Engine value

ACT_IAC_POS – Current Idle Air Control Motor Position
AFR_TARGET – Air Fuel Ratio Target
AFR_L_BANK – Air Fuel Ratio Left Bank
AFR_R_BANK – Air Fuel Ratio Right Bank
AFR_CYL_1 – Air Fuel Ratio Cylinder 1
AFR_CYL_2 – Air Fuel Ratio Cylinder 2
AFR_CYL_3 – Air Fuel Ratio Cylinder 3
AFR_CYL_4 – Air Fuel Ratio Cylinder 4
AFR_CYL_5 – Air Fuel Ratio Cylinder 5
AFR_CYL_6 – Air Fuel Ratio Cylinder 6
AFR_CYL_7 – Air Fuel Ratio Cylinder 7
AFR_CYL_8 – Air Fuel Ratio Cylinder 8

B

BARO – Outside Barometric Pressure
BATTERY_VOLTAGE – Battery voltage
BC_SENSOR_ERROR – Boost Controller Sensor Input Error
BOOST_PSI – Intake Manifold Pressure
BOOST_CL_DC – GN Boost Controller Duty Cycle Output %
Boost_Inc PIDTerm – GN Boost Controller PID Increase %

C

CLT – Coolant Temperature
CORR_AIR – Fuel Percentage Air Temperature Correction
CORR_AFTST – Afterstart Fuel Percentage Correction
CORR_BARO – Barometric Fuel Percentage Correction
CORR_CLT – Coolant Warm Up Temperature Fuel Percentage Correction
CORR_E85 – E85 Fuel Percentage Correction
CORR_ES_PVFC – Extended Source Power Valve Fuel Correction Percentage
CORR_FP_COMP – Fuel Pressure Correction
CORR_PVF – Power Valve Fuel Correction
CORR_SLT – Start Line Fuel Percentage Correction

D

DAE_INPUT – DAE 12vdc Input true or false
DSRD_BOOST_MAP – Desired Boost Map
DSRD_SR2_MAP – Desired SR2 Map
DUTY_CYCLE_BOOST_INC – Boost Controller Duty Cycle Output Increase %
DUTY_CYCLE_BOOST_DEC – Boost Controller Duty Cycle Output Decrease %
DUTY_CYCLE_PWM07 – Duty Cycle Output Pulse Width Modulation 07

DUTY_CYCLE_PWM08 – Duty Cycle Output Pulse Width Modulation 08
DUTY_CYCLE_PWM09 – Duty Cycle Output Pulse Width Modulation 09
DUTY_CYCLE_NOS_PRG – Progressive Nitrous Duty Cycle Control Output Percentage
DUTY_CYCLE_CYL1 – Fuel Injector Duty Cycle Percentage Cylinder 1
DUTY_CYCLE_CYL2 – Fuel Injector Duty Cycle Percentage Cylinder 2
DUTY_CYCLE_CYL3 – Fuel Injector Duty Cycle Percentage Cylinder 3
DUTY_CYCLE_CYL4 – Fuel Injector Duty Cycle Percentage Cylinder 4
DUTY_CYCLE_CYL5 – Fuel Injector Duty Cycle Percentage Cylinder 5
DUTY_CYCLE_CYL6 – Fuel Injector Duty Cycle Percentage Cylinder 6
DUTY_CYCLE_CYL7 – Fuel Injector Duty Cycle Percentage Cylinder 7
DUTY_CYCLE_CYL8 – Fuel Injector Duty Cycle Percentage Cylinder 8
DUTY_CYCLE_FRCMTR – Duty Cycle Force Motor Output Percentage (Used with 4L60E/80E)
DUTY_CYCLE_TCC – Duty Cycle Torque Converter Clutch Output (Used with 4L60E/80E)
DWELL_TIME – Ignition Coil Dwell Time

E

E85_SPARK_OFFSET – E85 Spark Offset
ECM_RB_EC – NTK O2 Sensor Right Bank Error Code
ECU_SYNC – Current ECU Synchronization Status
EGT_CYL1 – Exhaust Gas Temperature Cylinder 1
EGT_CYL2 – Exhaust Gas Temperature Cylinder 2
EGT_CYL3 – Exhaust Gas Temperature Cylinder 3
EGT_CYL4 – Exhaust Gas Temperature Cylinder 4
EGT_CYL5 – Exhaust Gas Temperature Cylinder 5
EGT_CYL6 – Exhaust Gas Temperature Cylinder 6
EGT_CYL7 – Exhaust Gas Temperature Cylinder 7
EGT_CYL8 – Exhaust Gas Temperature Cylinder 8
ENG_STATE – Engine State (1-Engine Cranking, 4-Engine Running Steady, 5-Engine Accelerating, 6-Engine Decelerating, 7-Deceleration Fuel Cutoff)
EGT_SHUTDOWN_ACTIVE – Exhaust Gas Temperature Shutdown Active Condition
ETM_TORQ_STG – Engine Torque Management Torque Stage Current Value
ETM_DS_ENG_ERROR – ETM Driveshaft or Engine RPM Error
ETM_DS_ENG_DSRD – ETM Driveshaft or Engine RPM Desired

F

FP_SENSOR_ERROR – Fuel Pressure Sensor Input Error
FP_WARNING_ACTIVE – Fuel Pressure Warning Active Condition
FSL_TBL_INDEX – Fuel Spark Lambda current map enabled
FUEL_FLOW_CYL1 – Calculated Fuel flow in lbs/hr for Cylinder 1
FUEL_FLOW_CYL2 – Calculated Fuel flow in lbs/hr for Cylinder 2
FUEL_FLOW_CYL3 – Calculated Fuel flow in lbs/hr for Cylinder 3

FUEL_FLOW_CYL4 – Calculated Fuel flow in lbs/hr for Cylinder 4
FUEL_FLOW_CYL5 – Calculated Fuel flow in lbs/hr for Cylinder 5
FUEL_FLOW_CYL6 – Calculated Fuel flow in lbs/hr for Cylinder 6
FUEL_FLOW_CYL7 – Calculated Fuel flow in lbs/hr for Cylinder 7
FUEL_FLOW_CYL8 – Calculated Fuel flow in lbs/hr for Cylinder 8
FUEL_FLOW_TOTAL – Total Calculated Fuel Flow of cylinders 1-8 in lbs/hr

G

GEAR – Current Gear position calculated by engine rpm drop
GEN_BOOST_ADD – Generic Boost Tables Additional Boost Pressure
GEN_FUEL_LBSHR_ADD – Generic Fuel Lbs/hr adder
GEN_FUEL_MULT – Generic Fuel Multiplier Percentage Adder
GEN_LAMBDA_ADD – Generic Lambda Fuel Adder
GEN_LAMBDA_MULT – Generic Lambda Fuel Multiplier
GEN_SPK_ADV_ADD – Generic Spark Advance Adder
GS_ACCEL – Gear Speed Acceleration
GYRO_X – Gyrometer X Axis
GYRO_Y – Gyrometer Y Axis
GYRO_Z – Gyrometer Z Axis

H

HEAD_TEMP_RB – Head Temperature Right Bank. When in Pro Mod Mode located in the System->Hardware Configuration section this sensor is enabled for use. Pro Mod Mode sets the water and air sensors to 100* in the software so that they have no bearing on the overall VE fuel calculation. This is the GM Water Temperature Sensor.
HEAD_TEMP_LB – Head Temperature Left Bank. When in Pro Mod Mode located in the System->Hardware Configuration section this sensor is enabled for use. Pro Mod Mode sets the water and air sensors to 100* in the software so that they have no bearing on the overall VE fuel calculation. This is the GM Air Temperature Sensor.

I

IAT – Intake Air Temperature
ICF_CORR_CYL1 – Individual Cylinder Fuel Percentage Correction Cylinder 1
ICF_CORR_CYL2 – Individual Cylinder Fuel Percentage Correction Cylinder 2
ICF_CORR_CYL3 – Individual Cylinder Fuel Percentage Correction Cylinder 3
ICF_CORR_CYL4 – Individual Cylinder Fuel Percentage Correction Cylinder 4
ICF_CORR_CYL5 – Individual Cylinder Fuel Percentage Correction Cylinder 5
ICF_CORR_CYL6 – Individual Cylinder Fuel Percentage Correction Cylinder 6
ICF_CORR_CYL7 – Individual Cylinder Fuel Percentage Correction Cylinder 7
ICF_CORR_CYL8 – Individual Cylinder Fuel Percentage Correction Cylinder 8

ICS_CORR_CYL1 – Individual Cylinder Spark Correction Cylinder 1
ICS_CORR_CYL2 – Individual Cylinder Spark Correction Cylinder 2
ICS_CORR_CYL3 – Individual Cylinder Spark Correction Cylinder 3
ICS_CORR_CYL4 – Individual Cylinder Spark Correction Cylinder 4
ICS_CORR_CYL5 – Individual Cylinder Spark Correction Cylinder 5
ICS_CORR_CYL6 – Individual Cylinder Spark Correction Cylinder 6
ICS_CORR_CYL7 – Individual Cylinder Spark Correction Cylinder 7
ICS_CORR_CYL8 – Individual Cylinder Spark Correction Cylinder 8
INJ_GPW_AVE – Fuel Injector Gross Pulse Width Average
INJ_PHASE_ANGLE – Fuel Injector Injection Event Phase Angle
IOT – Fuel Injector Opening Tim

L

LAMBDA_CYL1 – Lambda Value Cylinder 1
LAMBDA_CYL2 – Lambda Value Cylinder 2
LAMBDA_CYL3 – Lambda Value Cylinder 3
LAMBDA_CYL4 – Lambda Value Cylinder 4
LAMBDA_CYL5 – Lambda Value Cylinder 5
LAMBDA_CYL6 – Lambda Value Cylinder 6
LAMBDA_CYL7 – Lambda Value Cylinder 7
LAMBDA_CYL8 – Lambda Value Cylinder 8
LAMBDA_L_BANK – Lambda Reading Left Bank
LAMBDA_R_BANK – Lambda Reading Right Bank
LAMBDA_TARGET – Lambda Reading Left Bank
LAMBDA_RB_UA – Lambda Right Bank NTK O2 Error Code
LASER_HEIGHT__AD5 – Laser Height Sensor Reading

M

MAP – Engine Intake Manifold Pressure
MPH – Miles Per Hour

N

NERNST_CYL1 – Resistance value of the Cylinder 1 Bosch O2 sensor. Normal value is around 300. **NERNST_CYL2** – Resistance value of the Cylinder 2 Bosch O2 sensor. Normal value is around 300.
NERNST_CYL3 – Resistance value of the Cylinder 3 Bosch O2 sensor. Normal value is around 300.
NERNST_CYL4 – Resistance value of the Cylinder 4 Bosch O2 sensor. Normal value is around 300.
NERNST_CYL5 – Resistance value of the Cylinder 5 Bosch O2 sensor. Normal value is around

300.
NERNST_CYL6 – Resistance value of the Cylinder 6 Bosch O2 sensor. Normal value is around 300.
NERNST_CYL7 – Resistance value of the Cylinder 7 Bosch O2 sensor. Normal value is around 300.
NERNST_CYL8 – Resistance value of the Cylinder 8 Bosch O2 sensor. Normal value is around 300.
NOS_STAGE – Current NOS Stage
NOS_BOOST_ENABLE – Nitrous or Boost Enable Arm Switch
NOS_TIMER – When activated is the Nitrous Run Time
NOS_ICS_CORR_CYL1 – Nitrous Individual Cylinder Spark Correction Cylinder 1
NOS_ICS_CORR_CYL2 – Nitrous Individual Cylinder Spark Correction Cylinder 2
NOS_ICS_CORR_CYL3 – Nitrous Individual Cylinder Spark Correction Cylinder 3
NOS_ICS_CORR_CYL4 – Nitrous Individual Cylinder Spark Correction Cylinder 4
NOS_ICS_CORR_CYL5 – Nitrous Individual Cylinder Spark Correction Cylinder 5
NOS_ICS_CORR_CYL6 – Nitrous Individual Cylinder Spark Correction Cylinder 6
NOS_ICS_CORR_CYL7 – Nitrous Individual Cylinder Spark Correction Cylinder 7
NOS_ICS_CORR_CYL8 – Nitrous Individual Cylinder Spark Correction Cylinder 8

O

O2_CORR_CYL1 – Closed Loop O2 AFR Fuel Correction Cylinder 1
O2_CORR_CYL2 – Closed Loop O2 AFR Fuel Correction Cylinder 2
O2_CORR_CYL3 – Closed Loop O2 AFR Fuel Correction Cylinder 3
O2_CORR_CYL4 – Closed Loop O2 AFR Fuel Correction Cylinder 4
O2_CORR_CYL5 – Closed Loop O2 AFR Fuel Correction Cylinder 5
O2_CORR_CYL6 – Closed Loop O2 AFR Fuel Correction Cylinder 6
O2_CORR_CYL7 – Closed Loop O2 AFR Fuel Correction Cylinder 7
O2_CORR_CYL8 – Closed Loop O2 AFR Fuel Correction Cylinder 8
O2_CORR_L_BANK – Closed Loop O2 AFR Fuel Correction Left Bank
O2_CORR_R_BANK – Closed Loop O2 AFR Fuel Correction Right Bank

P

PCT_ETHANOL – Percentage of Ethanol in fuel (Need sensor to read properly)
PEDAL_BIT_MODE – Pedal Bit Mode Current Condition
PCT_TCC_SLIP – Percentage of Torque Converter Clutch Slippage (Used with 4L60E/80E)
PRESS_FUEL – Fuel Pressure Reading
PRESS_OIL – Oil Pressure Reading
PRESS_TURBO – Turbocharger Pressure Reading
PRESS_WG – Wastegate Pressure Reading
PRESS_NOS – Nitrous Pressure Reading
PRESS_PV – Pan Vacuum Reading

PRESS_TL – Transmission Line Pressure Reading
PRESS_DSRD_WG – CO2 Desired Wastegate
PRNDL – Park / Reverse / Neutral / Drive / Low (Used with 4L60E/80E)

R

RACE_FUEL_LBS_HR – NOS Mode Race Fuel Lbs/hr fuel adder
REV_LIMITER – Current condition of any active rev limiters
RPM_ENGINE – Engine RPM
RPM_TSS1_LB – Turbocharger Shaft Speed RPM Left Bank
RPM_TSS2_RB – Turbocharger Shaft Speed RPM Right Bank
RPM_ABS_FW – RPM Front Wheel Speed Sensor
RPM_ABS_RW – RPM Rear Wheel Speed Sensor
RPM_TOSS – RPM Transmission Output Speed Sensor or Driveshaft Sensor
RPM_TISS – RPM Transmission Input Speed Sensor

S

SLT_MODE – Start Line Timing Mode Current Condition
SHOCK_RF__AD7 – Right Front Shock Reading
SHOCK_LF__AD8 – Left Front Shock Reading
SHOCK_RR__AD9 – Right Rear Shock Reading
SHOCK_LR__AD10 – Left Rear Shock Reading
SPK_ADV_BCP – Base Spark Advance
SPK_ADV_CYL1 – Spark Advance Cylinder 1
SPK_ADV_CYL2 – Spark Advance Cylinder 2
SPK_ADV_CYL3 – Spark Advance Cylinder 3
SPK_ADV_CYL4 – Spark Advance Cylinder 4
SPK_ADV_CYL5 – Spark Advance Cylinder 5
SPK_ADV_CYL6 – Spark Advance Cylinder 6
SPK_ADV_CYL7 – Spark Advance Cylinder 7
SPK_ADV_CYL8 – Spark Advance Cylinder 8
SR2_TIMER – Current Race time after the release of the three step
SR2_GEAR1_SPK_OFFSET – SR2 Gear 1 Spark Offset
SR2_DS_SPK_OFFSET – SR2 Driveshaft or Engine Spark Offset
SR2_DS_ERROR – SR2 Driveshaft or Engine RPM Error
SR2_DS_DSRD – SR2 Driveshaft or Engine RPM Desired
SS_SPK_NOS_RTD – Street Strip Nitrous Spark Retard
SS_NOS_FUEL_ADD – Street Strip Nitrous Fuel Adder
SS_NOS_LAMBDA_OFFSET – Street Strip Nitrous Lambda Target Offset

T

TPS – Throttle Position Sensor Percentage
TOT – Transmission Oil Temperature Reading
THREE_STEP_INPUT – Three Step Input 12vdc true or false
THREE_STEP_MODE – Three Step Active Condition
TRANS_GEAR_RATIO – Current Transmission Gear Ratio (Used with 4L60E/80E)
TSD_GEAR1_OFFSET – Touch Screen Dash Gear 1 Offset
TSD_SR2_DS_OFFSET – Touchscreen Dash SR2 Driveshaft or Engine RPM Offset
TSD_ETM_DS_OFFSET – Touchscreen Dash ETM Driveshaft or Engine RPM Offset
TWO_STEP_INPUT – Two Step Input 12vdc true or false
TWO_STEP_ACTIVE – Two Step Active Condition
TWO_STEP_MODE – Two Step Active Condition

V

VE -Volumetric Efficiency number calculated from the base fuel map

W

WHEEL SPIN – Calculated wheel speed based off differential from either the rear wheel speed sensor or driveshaft sensor compared to the front wheel speed sensor.