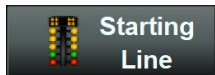




GEN4 PRO XTREME BigComm Pro Starting Line Menu User Manual

www.BigStuff3EFI.com

HOW TO USE THE BIGCOMM PRO CONFIGURATION & CALIBRATION TOOL BAR STARTING LINE MENU AND SUBMENU



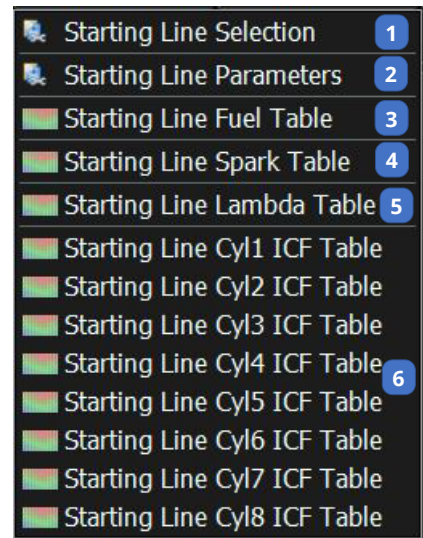
The GEN4 ECU starting line parameters will allow you to achieve Fuel, Spark, and Air Fuel Ratio offsets while staging your race car. Not only will you have complete control over these tables, but you will have individual cylinder fuel trims as well.

The Starting Line features are enabled through the GEN4 software and activate under certain criteria:

- (1) The starting line feature is enabled in the starting line main menu
- (2) The starting line TPS% and Engine RPM thresholds are met
- (3) The 3-Step input has 12vdc being applied
- (4) When the 3-Step input 12vdc is release the starting line features are switched off and the main tables are enabled.

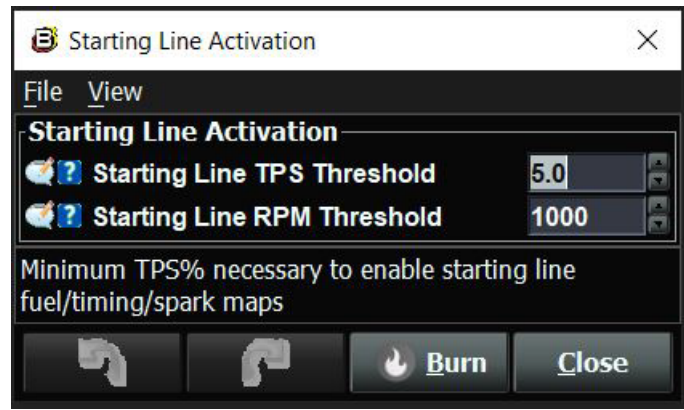
Starting Line Main Menu:

- (1) **Starting Line Selection** – Enable or Disable the starting line features
- (2) **Starting Line Parameters** – TPS% and Engine RPM Enable thresholds
- (3) **Starting Line Fuel Table** – The starting line fuel table can either be used to add or remove fuel based off the main fuel table. This is a percentage table that can be used to add or remove fuel. This table can be left with only 0's if no fuel required to be added or removed.
- (4) **Starting Line Spark Table** – The starting line spark table will be the absolute spark numbers and can either be a positive or negative value. This table must be filled in with timing numbers when the starting line features are activated.
- (5) **Starting Line Lambda Table** – The starting line lambda table will be the lambda targets when the starting line features are activated. This table must be filled in with lambda numbers when the starting line features are activated.
- (6) **Starting Line Cyl1-8 ICF Table** – The starting line individual cylinder fuel tables can either be used to add or remove fuel based off the current gear 1 individual cylinder fuel table. This is a percentage table that can be used to add or remove fuel. This table can be left with only 0's if no fuel required to be added or removed.



• STARTING LINE SELECTION

- (1) **Starting Line TPS Threshold** - TPS% to enable the starting line features
- (2) **Starting Line RPM Threshold** - Engine RPM to enable the starting line features



• STARTING LINE FUEL TABLE

The starting line fuel table when activated will either add or subtract fuel as a percentage to the main fuel table in your current project. In this example we are adding 10% fuel from 1,300 RPM to 3,167 RPM and 0psi to 10psi.

Pressure (psi)	500	767	1033	1300	1567	1833	2100	2367	2633	2900	3167	3433	3700	3967	4233	4500
20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
8.3	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
6.7	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
3.3	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
1.7	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
-2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

• STARTING LINE SPARK TABLE

The starting line spark table when activated will provide an absolute spark number when the starting line features are triggered. This table will override what is currently in the main spark table when activated. In this example we have a 5° spark advance timing setting from 2,633 RPM to 4,500 RPM and 0psi to 10psi.



20.0	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
18.0	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50
16.0	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
14.0	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
12.0	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50
10.0	25.50	25.50	25.50	25.50	25.50	25.50	25.50	25.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
8.3	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
6.7	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
5.0	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
3.3	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1.7	28.50	28.50	28.50	28.50	28.50	28.50	28.50	28.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
0.0	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
-2.5	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
-4.9	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
-7.4	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
-9.9	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
L	500	767	1033	1300	1567	1833	2100	2367	2633	2900	3167	3433	3700	3967	4233	4500

RPM

• STARTING LINE LAMBDA TABLE

The starting line lambda table when activated will provide the absolute lambda or AFR target when the starting line features are triggered. This table will override what is currently in the main lambda / AFR table when activated. In this example we have a 10.0 AFR target from 3,214 RPM to 4,500 RPM and 0 psi to 10psi.

20.0	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
16.7	11.25	11.25	11.25	11.25	11.25	10.67	10.67	10.67	10.67	10.67	10.67	10.67	10.67	10.67	10.67	10.67
13.3	11.50	11.50	11.50	11.50	11.50	10.32	10.32	10.32	10.32	10.32	10.32	10.32	10.32	10.32	10.32	10.32
10.0	11.75	11.75	11.75	11.75	11.75	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
5.0	12.13	12.13	12.13	12.13	12.13	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
0.0	12.50	12.50	12.50	12.50	12.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
-4.9	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
-9.9	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
L	1500	1929	2357	2786	3214	3643	4071	4500								

RPM



• **STARTING LINE INDIVIDUAL CYLINDER FUEL TABLES (1-8)**

The starting line individual cylinder fuel tables when activated will either add or subtract fuel as a percentage to the gear 1 individual cylinder fuel tables in your current project. In this example we are adding 10% fuel from 3,000 RPM to 4,500 RPM and 0psi to 12psi in cylinder 1. Cylinders 2-8 will follow the same guidelines.

	2500	3000	3500	4000	4500	5000	5500	6000
20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.0	0.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0
8.0	0.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0
4.0	0.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0
0.0	0.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0
-2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
psi	2500	3000	3500	4000	4500	5000	5500	6000

FREQUENTLY ASKED QUESTIONS

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

-Working "Off-line" = The BigStuff3 ECU is not powered up (PC Only). Working "On-line" = The BigStuff3 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 GEN3 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).

The Base Spark Table(s) are edited as soon in the Bigstuff3 GEN4 ECU Full Software Manual located on our website. Click on this link to navigate and download.

• **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 BigStuff3 website, and then Ignition System Setup Tutorial. The link is: <http://bigstuff3.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 BS3 power-train system and optional systems?**

-Information on most of our wiring harnesses is available on our website at www.bigstuff3.com.

-Go to the GEN4 section on the website and under the GEN4 PRO XTREME menu will be more information. The link is: <http://bigstuff3.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 BS3 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/af/r/spark tables on this or any MAP sensor change.
- Note: The 4 BAR MAP sensor sold by BigStuff3 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 BS3 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 Bigstuff3 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, BigStuff3 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.

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_DSIRD – 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_DSIRD – 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.

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