



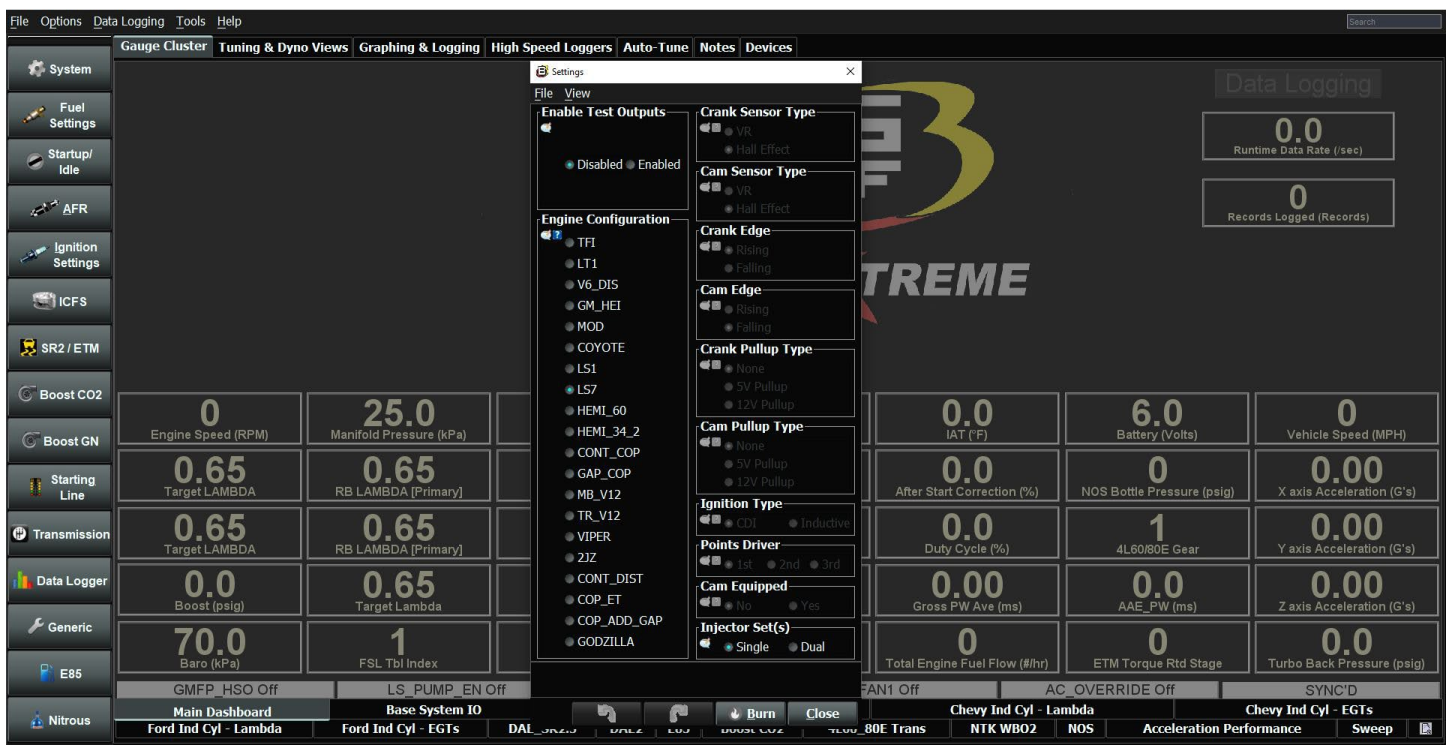
GEN4 Pro Extreme Ignition Configuration Guide

The GEN4 Pro Extreme ECU is one of the most advanced ECU's on the market and can control most any types of ignition configurations. By following this guide, you can configure your ignition configuration and get your combo running in no time.

Dealer Settings

The Dealer Settings menu are the baseline for setting up the crank and cam sensor configuration. They can be accessed by typing the letters d l r very fast while open in a project. A password menu will pop up and the passphrase is motor. Once the window is open you will choose the ignition type based on your combination.

This is the window that will pop up when you have successfully opened the Dealer Settings.



NOTE – If you choose the following ignition types you will need to choose which type of crank and cam sensor used. You will also need to enter if a pull up power supply will be provided on the signal wire for a HED sensor. If using a 2 wire IPU/VR sensor you will choose rising edge and if you have a 3 wire Hall Effect sensor you will choose falling edge.

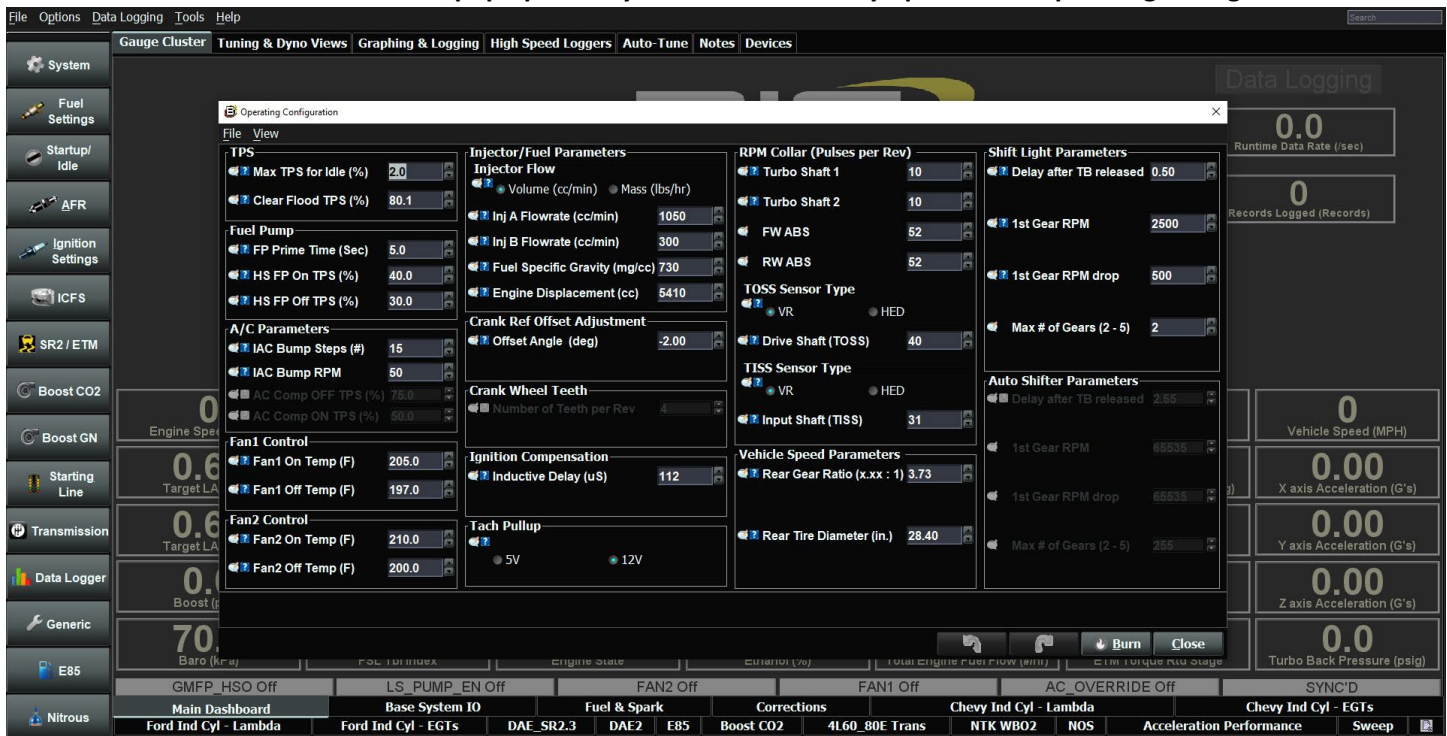
CONT_COP
CONT_DIST

Once you have made your changes click on Burn if online with the controller and cycle the ignition. When the laptop software shows the offline mode your ECU is ready to have the ignition turned back on. If you are editing a project while in an offline mode you will need to update the ECU when you connect the next time.

Operating Configuration

Once the Dealer Settings have been configured correctly you will navigate to the System Section and open the Operating Configuration.

This is the window that will pop up when you have successfully opened the Operating Configuration.



The 3 parameters you will be adjusting will be the and each parameter is explained below:

1. Crank Reference Offset Adjustment
2. Crank Wheel Teeth
3. Ignition Compensation

Crank Reference Offset Adjustment – This value is used to calibrate the ignition timing with the ECU.

If you are starting an engine for the first time it is **HIGHLY** recommended to verify the ignition timing while cranking with the fuel injectors unplugged. This will allow you to verify the ignition timing is close the cranking timing setting which is typically around 15*BTDC. If you are reading a value either much higher or lower, you will need to troubleshoot the issue so that the engine will want to start properly. Engine damage can occur if you are repeatedly trying to start the engine while the ignition timing is not adjusted correctly.

With the engine running you will enable the test timing feature by navigating to the Ignition Menu and select Spark Modifiers. Once the table is opened select the Test Timing feature and enable it. Enter a value that is easy to read on your harmonic balancer which is typically 20-30* BTDC number one cylinder. With the engine running rev it to around

2500-3000rpm and see where the timing rests at.

If your target test timing reads 25* on your timing light and you have a 20* test timing value in the software, you will enter a -5 in the Crank Reference Offset.

If your target test timing reads 15* on your timing light and you have a 20* test timing value in the software, you will enter a 5 in the Crank Reference Offset.

It's an inverse relationship so that if the actual timing is low, you will enter a positive value and if the actual timing is high you will enter a negative value.

Crank Wheel Teeth – This value is where you enter the number of pickups on the crank sensor. This box will be greyed out if you have selected an ignition type in the dealer settings that is not adjustable such as an LS1 or MOD motor configuration.

Ignition Compensation – This value is used to enter the amount of microsecond delay used for either a coil on plug or distributor-based system. There are only 2 values to enter which are 10 for any distributor-based system and 112 for any coil on plug system.

Crank and Cam Placement

The attached table's will show you where to physically mount the crank and cam sensors in relation to the crank and cam pickups on your system. Follow the table carefully as if the crank and cam sensor are not mounted in the appropriate locations the engine may not fire and damage may occur.

NOTE – **ALWAYS** unplug the fuel injectors when checking base timing so as not to introduce any fuel during the initial cranking to confirm the engine is close to proper operating ignition timing.

Bigstuff GEN 4 ECU Ignition Configuration	Dealer Settings	Crank Sensor Type	Cam Sensor Type	Cam Sensor Optional	Crank Wheel Teeth Value Adjustable
TFI Ignition	Default Settings Only	Default Settings Only /	Default Settings Only	No	No
LT1	Default Settings Only	HED with 5 volt Pull Up On	Default Settings Only	No	No
V6_DIS	Default Settings Only	Default Settings Only	Default Settings Only	No	No
GM_HEI	Default Settings Only	Default Settings Only	Default Settings Only	No	No
MOD	Default Settings Only	Default Settings Only	Default Settings Only	No	No
COYOTE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
LS1	Default Settings Only	Default Settings Only	Default Settings Only	No	No
LS7	Default Settings Only	Default Settings Only	Default Settings Only	No	No
HEMI_60	Default Settings Only	Default Settings Only	Default Settings Only	No	No
HEMI_34_2 NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
CONT COP	User Adjustable	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes
2X Crank Wheel	Enter Value in Operating Configuration	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes set for 2
3X Crank Wheel	Enter Value in Operating Configuration	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes set for 3
4X Crank Wheel	Enter Value in Operating Configuration	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes set for 4
12X Crank Wheel	Enter Value in Operating Configuration	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes set for 12
24X Crank Wheel	Enter Value in Operating Configuration	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	No	Yes set for 24
24X Coyote Crank Wheel	Enter Value in Operating Configuration	Stock IPU Sensor VR(2-Wire)	Stock IPU Sensor VR(2-Wire)	No	Yes set for 24
GAP_COP NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
MB_V12 NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
TR_V12 NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
VIPER NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
2JZ NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
CONT_DIST	User Adjustable	VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)	Yes	Yes
8x Distributor		VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)		
4x Crank Trigger		VR(2-Wire) or Hall Effect(3-Wire)	VR(2-Wire) or Hall Effect(3-Wire)		
COP_ET NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
COP_ADD_GAP NOT USED / FOR FUTURE USE	Default Settings Only	Default Settings Only	Default Settings Only	No	No
GODZILLA	Default Settings Only	Default Settings Only	Default Settings Only	No	No
NOTE - VR/IPU Sensors are always rising edge and HED sensors are always falling					

Bigstuff GEN 4 ECU Ignition Configuration	Crank sensor pickup aligned on the harmonic balancer at	Cam Sensor Installed at	Inductive Delay Setting	Crank Reference Offset Baseline Value
TFI Ignition	Stock Sensors used in stock locations		Inductive	10
LT1	Stock Sensors used in stock locations		45	6
V6_DIS	Stock Sensors used in stock locations			0
GM_HEI	Stock Sensors used in stock locations			
MOD	Stock Sensors used in stock locations. Missing tooth on crank wheel installed at 50BTDC, VR sensor, Rising Edge of sensor.	Cam sensor installed at 20° ATDC, VR Sensor and Rising Edge of sensor.		0
COYOTE	Stock Sensors used in stock locations			0
LS1	Stock Sensors used in stock locations			0
LS7	Stock Sensors used in stock locations			0
HEMI_60	Stock Sensors used in stock locations. Uses Stock 60-2 crank wheel and sensor.	Uses stock 13x cam sensor.		0
HEMI_34_2 NOT USED / FOR FUTURE USE	Stock Sensors used in stock locations			
CONT COP			112	0
2X Crank Wheel	45° BTDC Compression Stroke. Set for Rising Edge of Crank Sensor.	70° BTDC Falling Edge of Cam Sensor	112	0
3X Crank Wheel	TDC Compression Stroke. Set for Rising Edge of Crank Sensor.	60° BTDC Falling Edge of Cam Sensor	112	0
4X Crank Wheel	TDC Compression Stroke. Set for Rising Edge of Crank Sensor.	45° BTDC Falling Edge of Cam Sensor	112	0
12X Crank Wheel	TDC Compression Stroke. Set for Rising Edge of Crank Sensor.	15° BTDC Falling Edge of Cam Sensor	112	0
24X Crank Wheel	Nearest crank pickup on crankshaft.	Falling edge of TDC	112	0
24X Coyote Crank Wheel	Uses adjustable crank wheel. Start at 0° offset at TDC of Compression Stroke.	Cut all teeth off passenger side exhaust cam except for the middle tooth on the 3 pickups right next to each other.	112	45
GAP_COP NOT USED / FOR FUTURE USE				
MB_V12 NOT USED / FOR FUTURE USE	Stock Sensors used in stock locations			
TR_V12 NOT USED / FOR FUTURE USE	Stock Sensors used in stock locations			
VIPER NOT USED / FOR FUTURE USE	Stock Sensors used in stock locations			
2JZ NOT USED / FOR FUTURE USE	Stock Sensors used in stock locations			
CONT_DIST			10	0
8x Distributor	No need to align		10	0
4x Crank Trigger	Line up crank trigger wheel with the sensor at 45° btdc	70° BTDC Falling edge of can sensor	10	0
COP_ET NOT USED / FOR FUTURE USE				
COP_ADD_GAP NOT USED / FOR FUTURE USE				
GODZILLA	Stock Sensors used in stock locations		112	0
NOTE - VR/IPU Sensors are always rising edge and HED sensors are always falling				