5” Sniper EFI Digital Dash

553-200

User Manual

Contents

PACKAGE CONTENTS

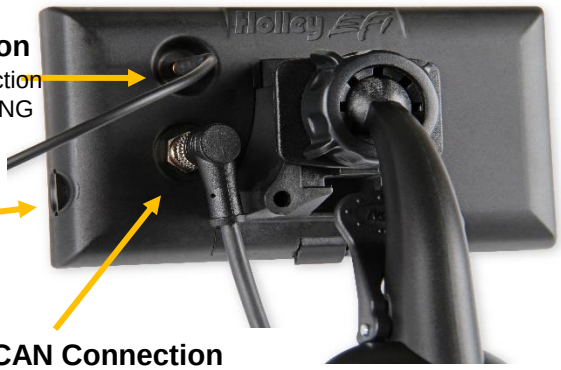
MOUNTING

The 5” Sniper Dash comes with a suction cup mount and two different length mounting stands, offering a wide variety of mounting solutions. The mounting stands slide into the back of the display, as shown below.

Modular Mounting Brackets

Slide mount into display housing.
To release from housing, press the locking clip and slide.
Suction cup mount will then slide into the grooves on the bracket.

CONNECTIONS



GPS Antenna Connection
PUSH ON & PULL OFF Connection
DOES NOT REQUIRE TURNING

Micro SD Card Slot

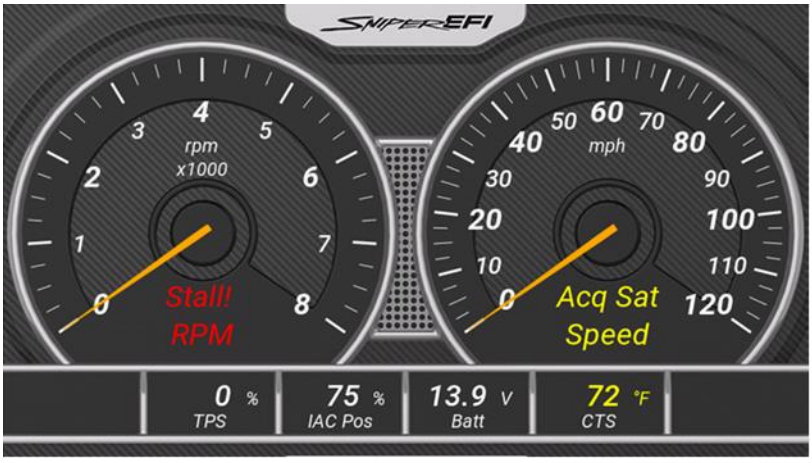
Handheld CAN Connection
CAN Cable features indexing key and attaches to the Display via threaded collar. Other end of cable connects directly to the Sniper EFI Throttle Body

CAN/POWER

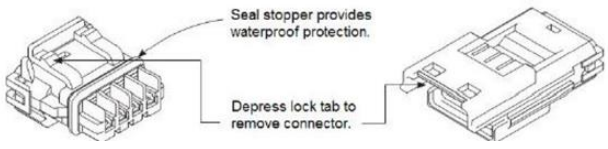
Connect the harness from the CAN connector on the vehicle's main harness to the 5" Sniper Dash.

A 4 pin male receptacle connector is used to connect to the Sniper EFI Main Harness.

Once all connections have been made, the Sniper EFI 5" Dash may be powered up. After a brief initial loading sequence, the default gauge display will appear.



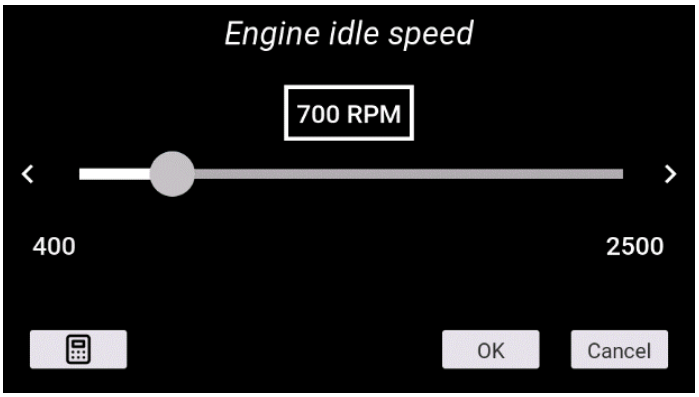
Sniper EFI Touchscreen LCD Display
Note: If the Touch Screen LCD Display needs to be unhooked from the Sniper EFI. Depress the lock tab on the male side of the connector as show in the following pictures.

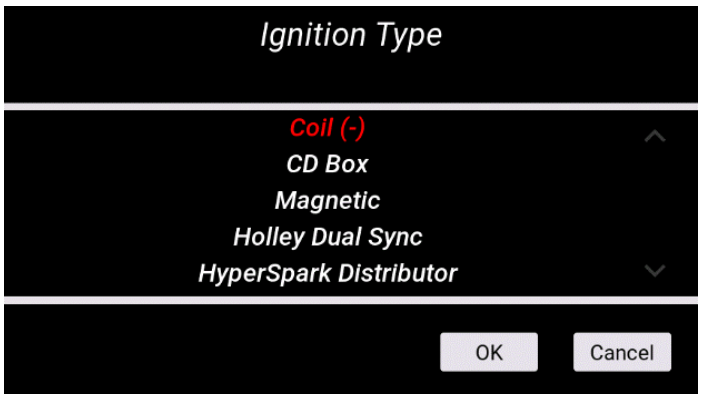


MAKING ADJUSTMENTS

Slider Bar: Slide the bar left or right with the stylus, or use the right and left arrow keys for fine adjustment.

List: Use the scroll bar on the right hand side of the screen to view all list entries. Touch the desired list item and click 'OK' to make a selection.





HOME SCREEN

The home screen contains icons which will navigate to different functional features of the 5" Dash. These features will be discussed in detail throughout this manual. After 7 seconds, the left menu will slide off the side of the display. It can be accessed again by tapping the screen and pressing the Menu Icon.

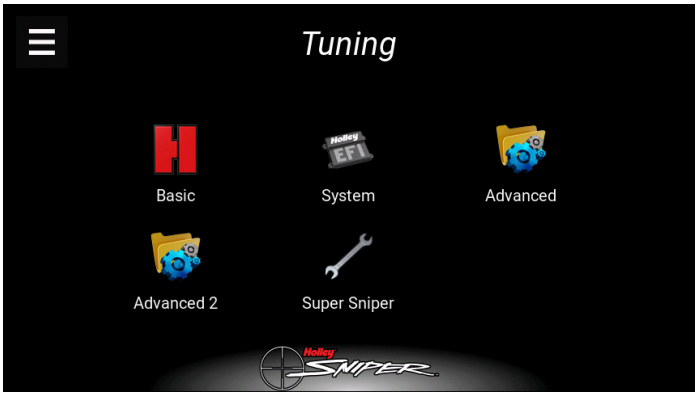
Home Screen

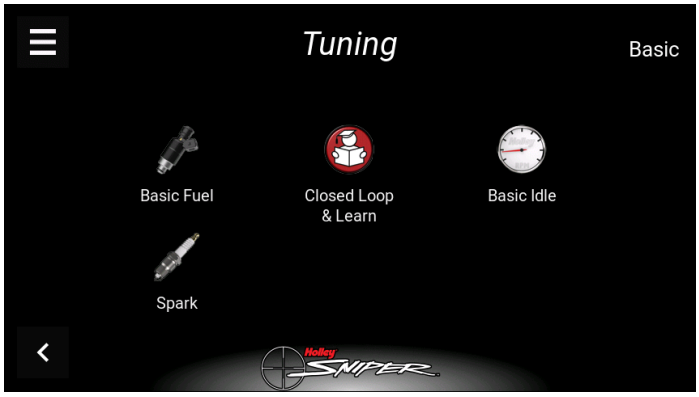
TUNING

The Sniper 5” Dash facilitates ‘laptop-free’ tuning changes to help optimize mileage, drivability, and performance. Tuning is categorized by “Basic”, “System”, “Advanced”, “Advanced 2” and “Super Sniper”.

BASIC TUNING

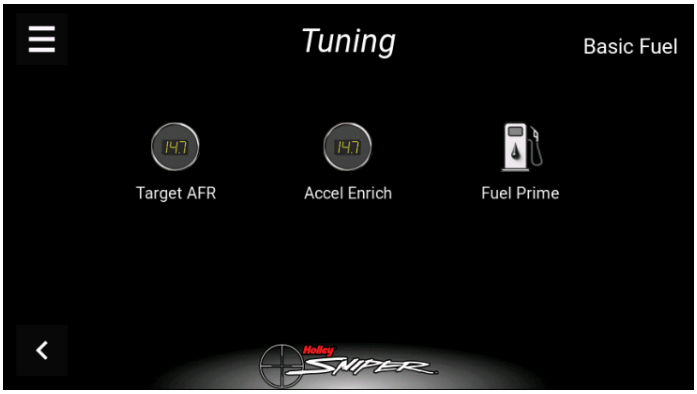
From the Left MENU, select TUNING, then BASIC. There are four areas you can modify, BASIC FUEL, CLOSED LOOP & LEARN, BASIC IDLE, and SPARK. These are reviewed below.





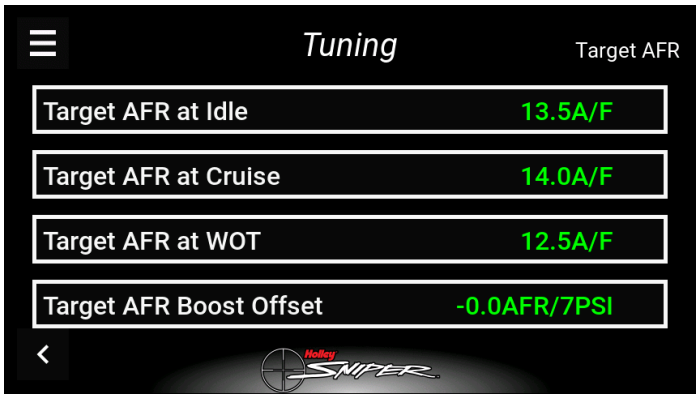
BASIC FUEL

Selecting BASIC FUEL brings up the following menu:



TARGET AFR:

Allows changes to the Target Air/Fuel ratio at idle, cruise, and wide open throttle. The following are typical values and some tuning notes.

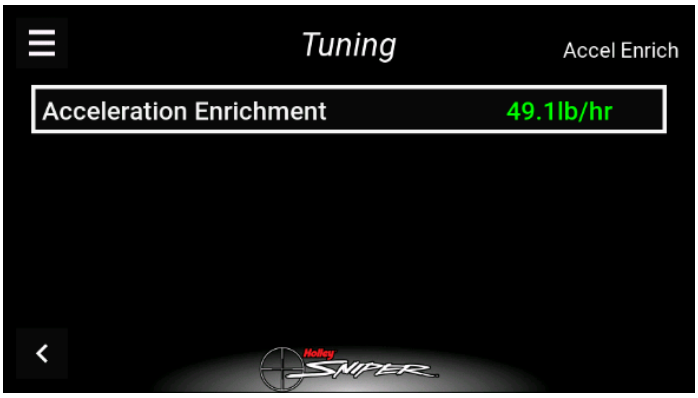


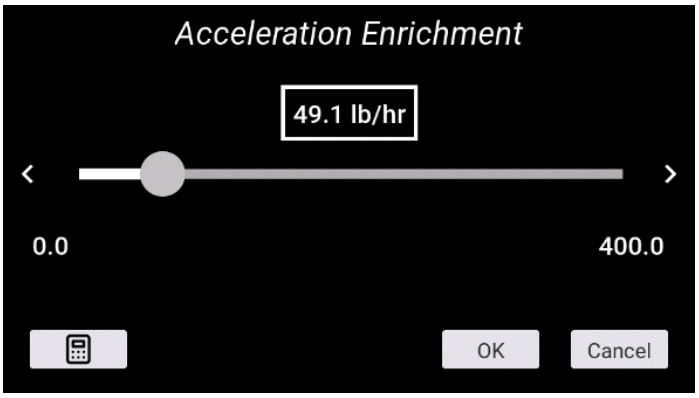
- ***Idle Air/Fuel Ratio*** – Typically between 15" and 15.0. Engines with larger cams may need a richer setting for smoothest idle.
- ***Cruise Air/Fuel Ratio*** – Typically between 15" and 15.5. Engines with larger cams may need a richer setting for smoothest operation.
- ***Wide Open Throttle Air/Fuel Ratio (WOT)*** – Typically between 12.0 and 13.0. Running richer may reduce power. Running leaner may reduce power or cause potential engine damage.
- ***AFR Boost Offset*** – Modifies the target AFR while under boost. The input is how much you would like the Air/Fuel Ratio decreased per 7 PSI of boost. This will richen up the Air/Fuel Ratio. Good starting point would be 0.3-0.4 AFR offset per 7 PSI of Boost. There are 4 boxes that will show up when modifying this parameter. Each box corresponds to the target AFR at 0 PSI, 7PSI, 14PSI & 21PSI of boost.

NOTE: The Target Air/Fuel setting between IDLE, CRUISE, and WOT is blended together automatically. Consequently, the air/fuel you see on the MONITOR screen, may not be exactly what you set for the settings. Changing these settings raises or lowers the "curve" of that specific area.

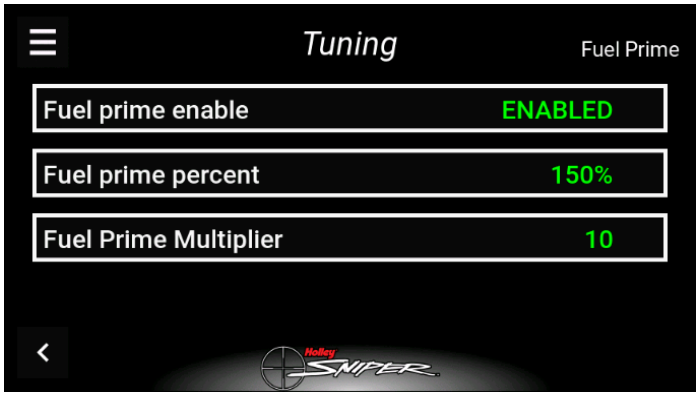
ACCELERATION ENRICHMENT:

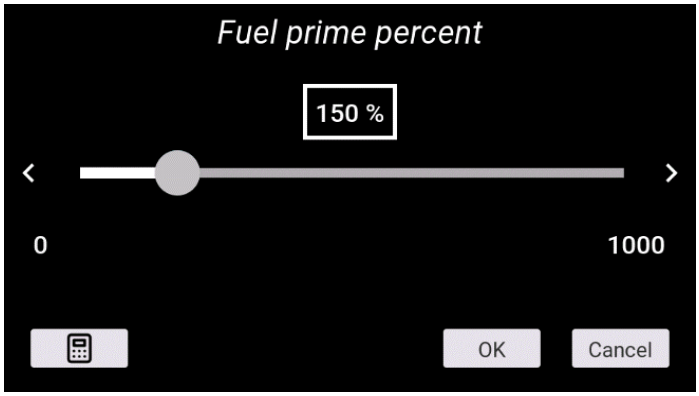
This changes the “accelerator pump” function of the fuel injection. Raising the number increases the amount of fuel added when the pedal is pushed. Lowering the number decreases the amount of fuel added when the pedal is pushed. It is highly recommended NOT to change this until the ECU is allowed to perform self-tuning.

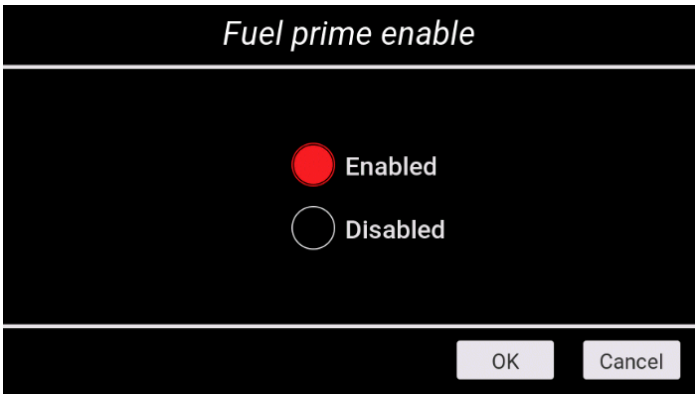




FUEL PRIME:



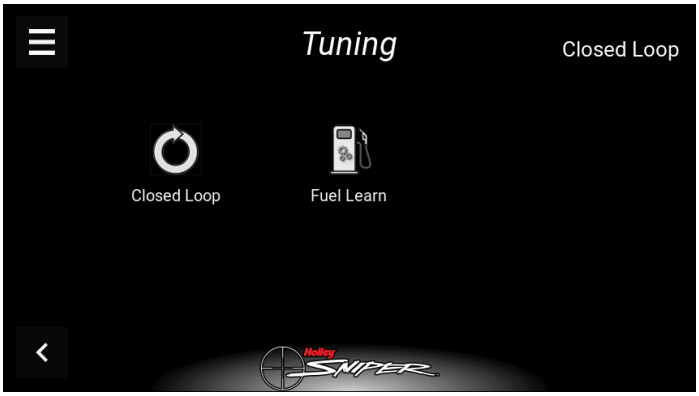




Fuel prime is an option that is enabled by default in all of the base calibrations. The fuel prime function injects a small shot of fuel into the intake manifold when the ignition is turned on, wetting the intake and allowing the engine to start much quicker. The amount of fuel is based on the engine temperature and how long it was since the engine previously ran. This amount of fuel can be increased or decreased by changing the “Percent” value. If the engine seems flooded, reduce this value. If the engine seems to want more fuel, increase it. Experiment for best results.

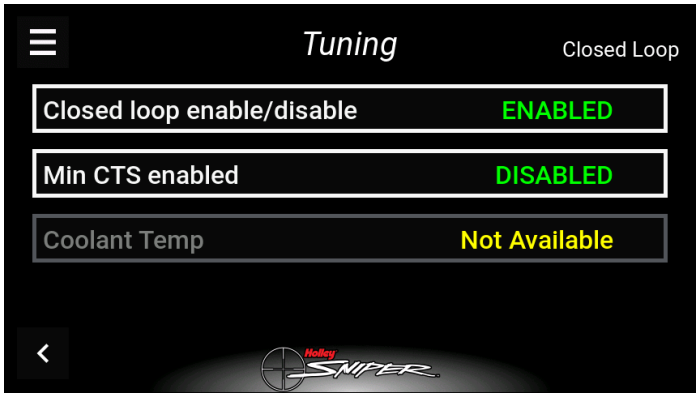
NOTE: On Sniper EFI, this only injects fuel at key-on, and will continue to inject a prime shot every time the ignition is turned on. This fuel prime occurs 2.5 seconds after key-on. If you quickly turn the ignition key without waiting for 2.5 seconds, the prime will not occur and it may take longer for the engine to start.

CLOSED LOOP & LEARN



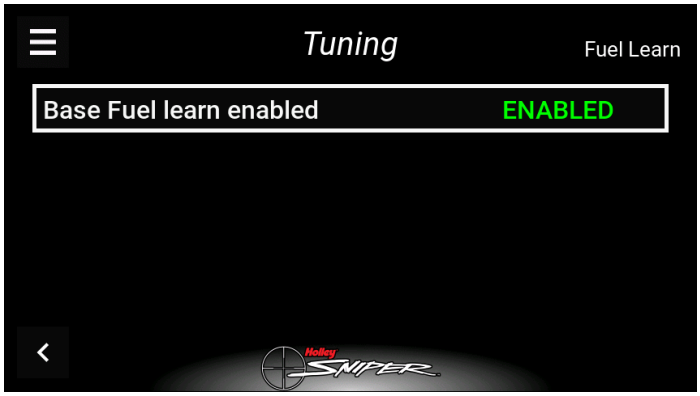
CLOSE LOOP ENABLE / DISABLE:

The Closed Loop Enable / Disable menu turns Closed Loop “On” and “Off”. If enabled, the fuel table will be modified based on target AFR vs Actual Wideband AFR.



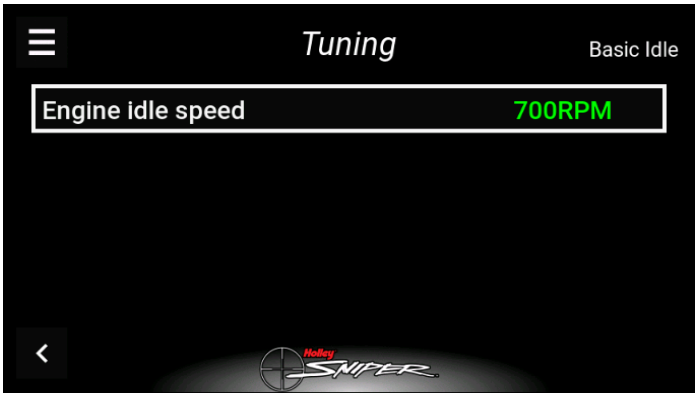
LEARN ENABLE / DISABLE:

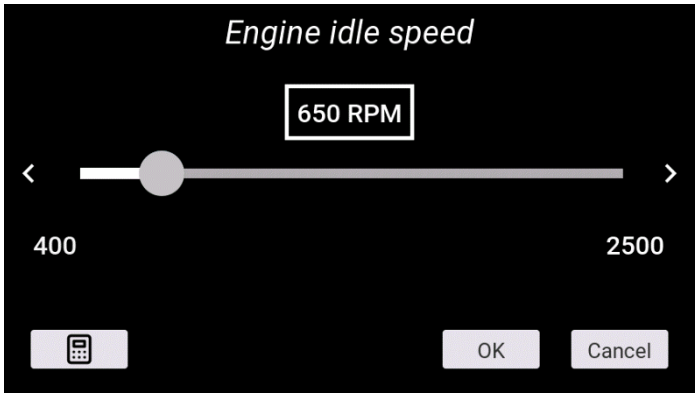
The LEARN Enable / Disable menu turns the Self Tuning “On” and “Off”. If enabled, self-tuning is performed. Learning should be enabled when an engine is just started and the tuning process is occurring. After the vehicle is driven under various operating conditions, and is running well, it is advised to disable learning, OR slow the Learn Speed to “Slow”.

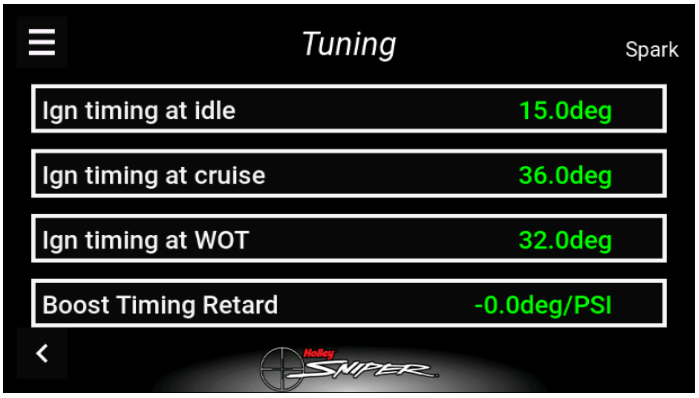


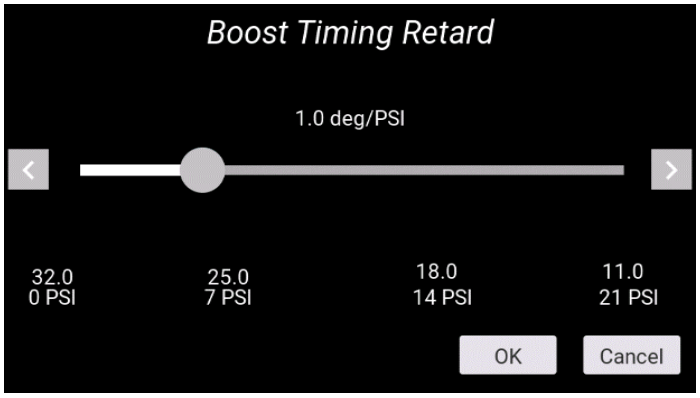
BASIC IDLE

Selecting BASIC IDLE allows you to change the Target Engine Idle Speed. This should be adjusted to your desired idle RPM. Values between 650-800 rpm are typical. Larger camshafts or aftermarket torque converters may require a slightly higher value to maintain proper idle quality while in gear.









All Sniper base tunes contain timing curves that will provide adequate engine operation, however the ignition timing at idle, cruise, and wide open throttle can be adjusted independently from each other to compensate for geographical and climate extremes.

The following are typical values for each:

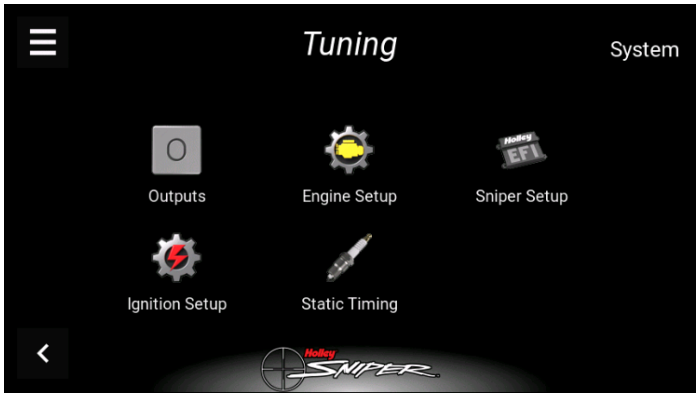
- **Idle Timing** – 18-34 degrees is typically used at idle. The larger the camshaft, the more timing is usually used.
- **Cruise Timing** – 32-48 degrees is typically used when cruising for optimal fuel economy.
- **Wide Open Throttle Timing (WOT)** – WOT timing is typically between 26-38 degrees.
- **Boost Timing Retard** – Retards the timing from the WOT timing setting per pound of boost. Good starting point is 1 degree of timing retard per lb. of boost. There are 4 boxes that will show up when modifying this parameter. Each box corresponds to the total timing at 0 PSI, 7PSI, 14PSI & 21PSI of boost.

NOTE: Too much timing can cause pre-ignition that can damage an engine. Be cautious when tuning.

NOTE: The actual timing between IDLE, CRUISE, and WOT is blended together automatically. Consequently, the timing you see on the MONITOR screen, may not be exactly what you set for these settings. Changing these settings raises or lowers the “curve” of that specific area.

SYSTEM TUNING

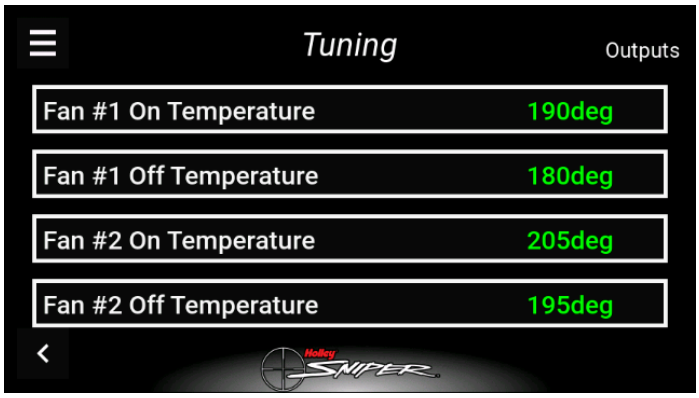
From the HOME MENU, select TUNING, and SYSTEM. There are four areas you can modify: OUTPUTS, ENGINE SETUP, SNIPER SETUP, IGNITION SETUP, and STATIC TIMING.

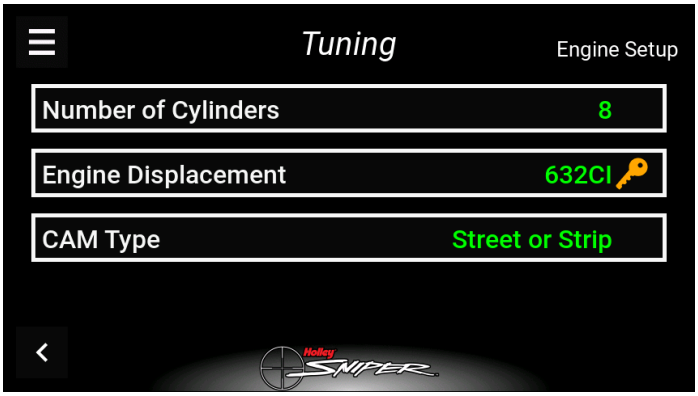


OUTPUTS

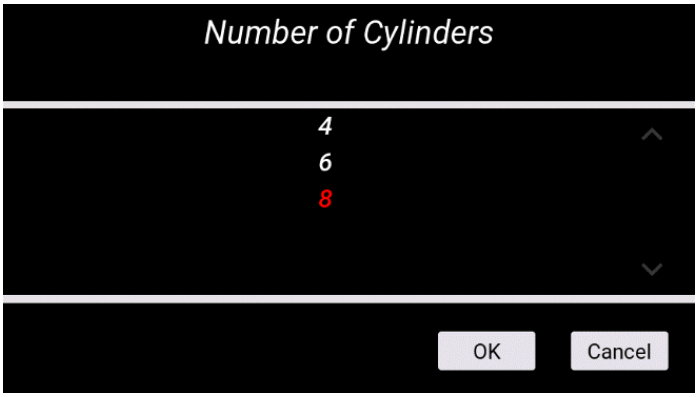
The OUTPUT screen allows for the Fan #1 and Fan #2 ON and OFF temperatures to be adjusted. The ON temp needs to always be a higher value than the OFF temp. Use a difference of at least 5 degrees so they aren't cycling excessively. In Sniper Kits these are ground outputs that should be wired to trigger the fan relays. NEVER wire them directly to the fans! The AC Disable value is a TPS value above which a 12 volt output is sent out to deactivate the air conditioning compressor at wide open throttle.

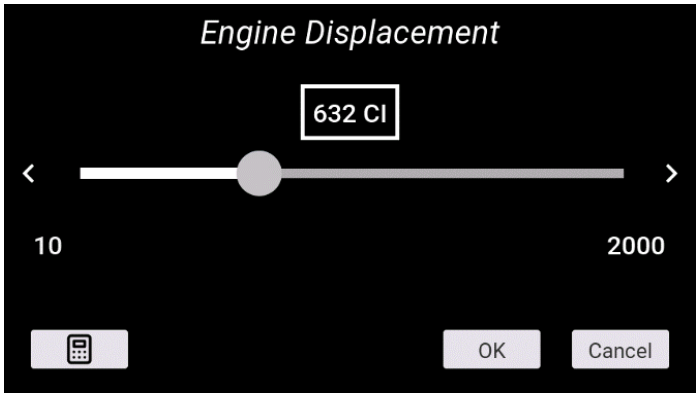
Detailed wiring instructions are provided with Sniper EFI Kits.

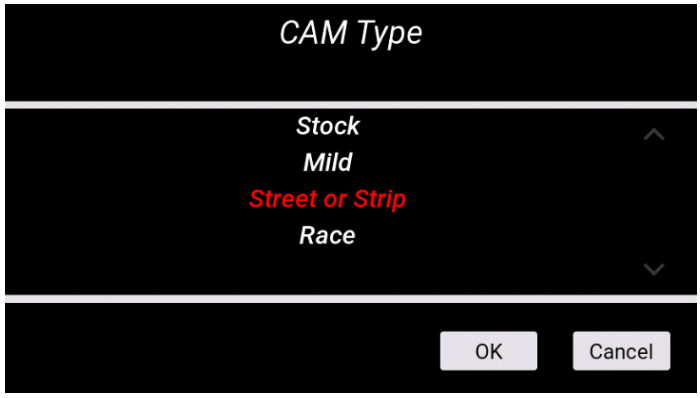




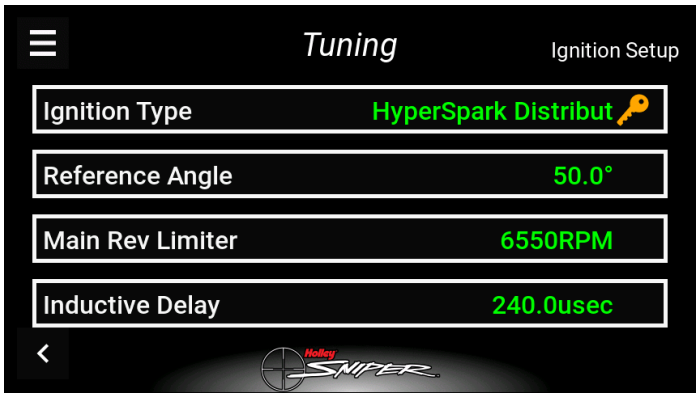
Number of Cylinders: Select how many cylinders your engine has, 4, 6, or 8.
Engine Displacement: Enter how many cubic inches your engine is.
CAM Type: Select your Camshaft Type: Stock -This selection will work well on most applications equipped with stock or “street performance” camshafts. Choose Stock or Mild If you are unsure of your camshaft specs. Street/Strip - Select this if your engine has between 8” and 13” of manifold vacuum ***Race** - Select this if your engine has less than 7” of manifold vacuum. Race oriented camshafts may require laptop tuning for optimal idle stability. **Selecting Race will disable Closed Loop Control at Idle.** Make this selection if your engine has open headers.







IGNITION SETUP

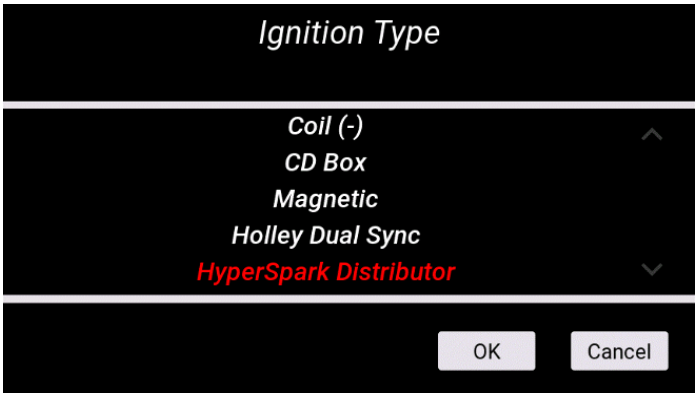


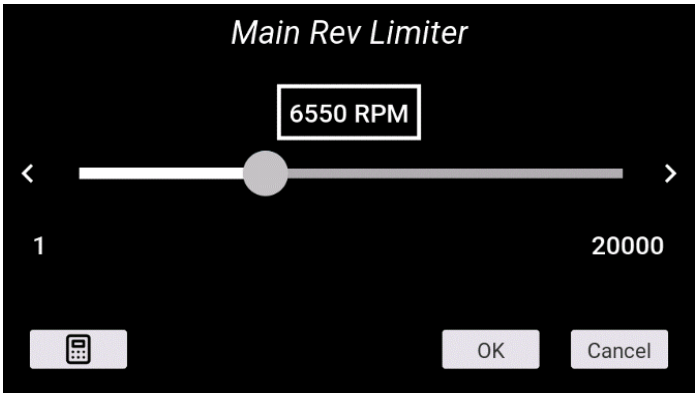
Ignition Type: Select how the Sniper ECU will be receiving the RPM signal from your engine. Coil (-) [no timing control] • CD Ignition Box [no timing control] • Magnetic Distributor • Holley Dual Sync Distributor • HyperSpark Distributor

Reference Angle (Timing Control Only): This is the value in crank degrees of the distributor's crank pulse. These values are preset in the base calibrations and should not need to be adjusted

Main Rev Limiter: The RPM threshold where the Injectors will turn off.

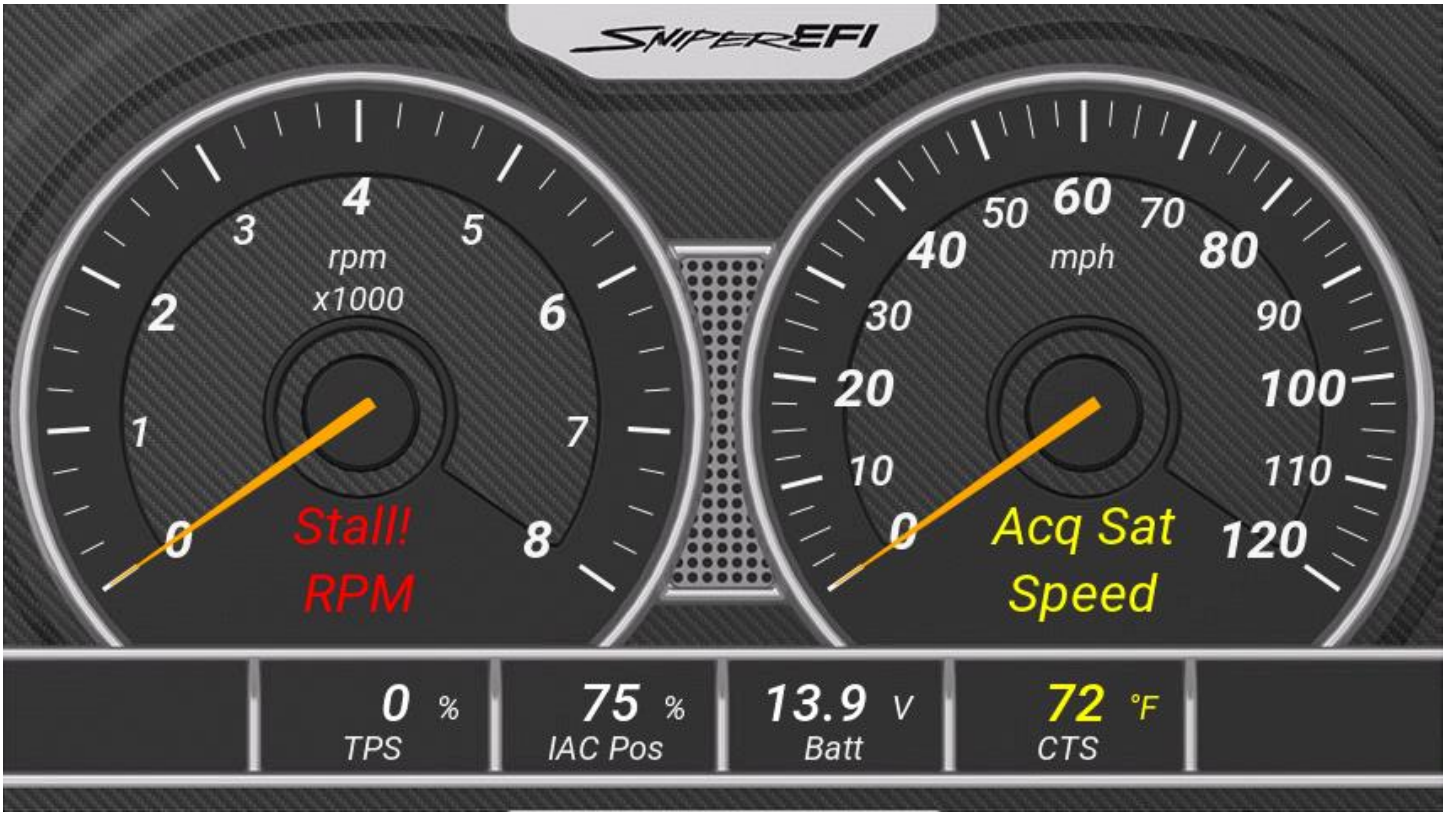
Inductive Delay (Timing Control Only): Use this value to sync timing at higher RPMs. These values are preset in the base calibrations. Some ignition modules may need this number altered if the commanded timing does not match the commanded timing as engine speed increases. If the timing starts to retard as rpm increases, this number can be increased in order for the timing to match. Recommended increments is in 20 usec until the timing matches the commanded at all RPMs.



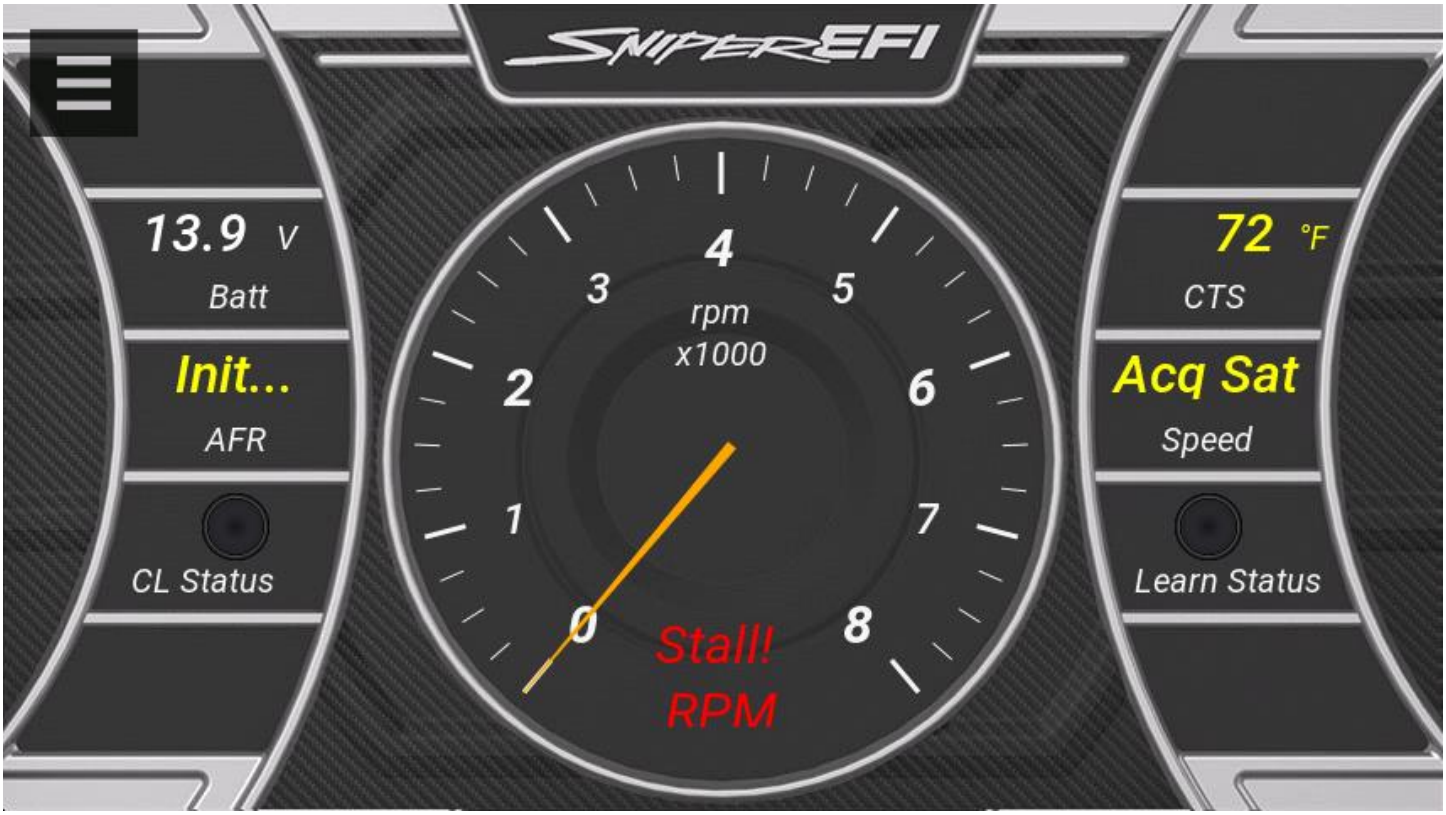


MONITOR

Choose MONITOR from the HOME screen to access live telemetry and customizable gauge screen options. The Sniper 5” Dash come pre-loaded with 3 default layouts.



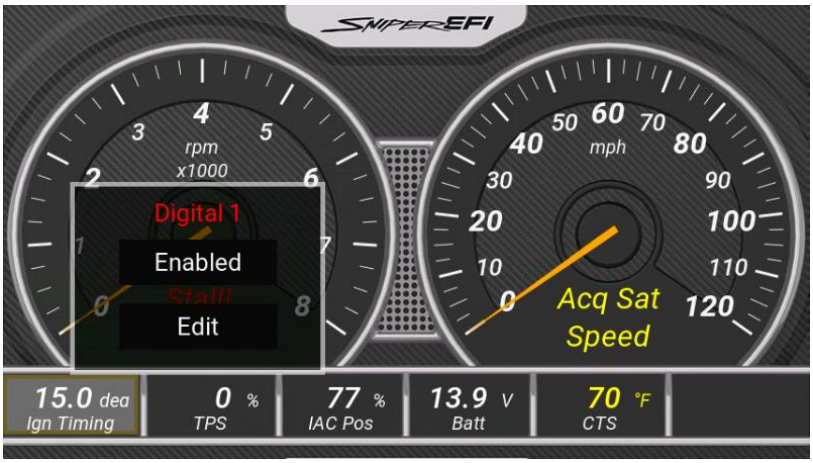
Default Layout 1

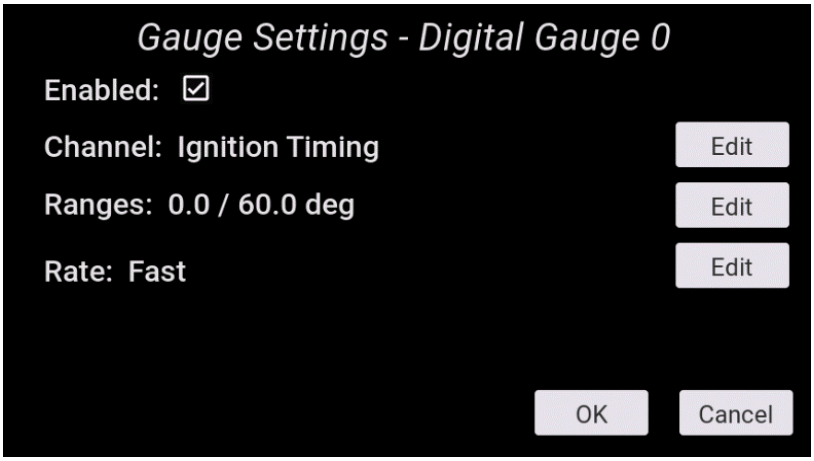


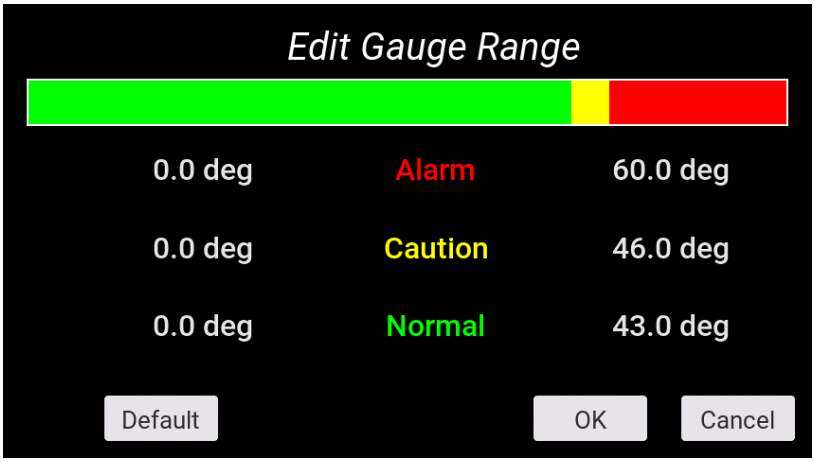
Default Layout 2

Default Layout 3

Each channel displayed by the 5” Touchscreen can be configured to have caution and warning indicators. To do this, choose ‘Ranges’ from the Gauge Settings menu. Cautions will display as Yellow and Warnings or Alarms will display as RED. Press and hold any gauge on the display to open the gauge editing menu. This meu will allow you to enable, or disable any gauge channel. Additionally, you can Edit any gauge from this menu, as seen below.

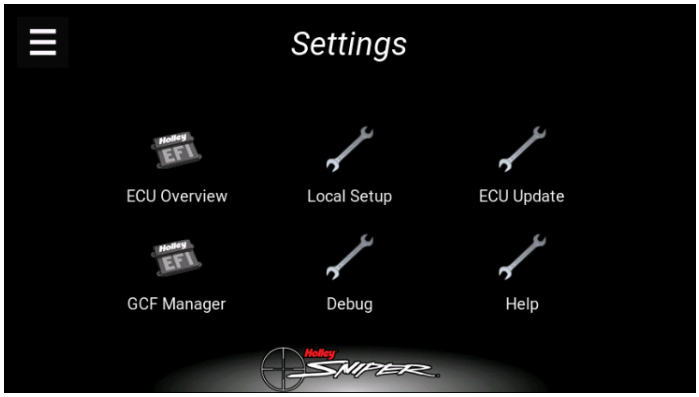




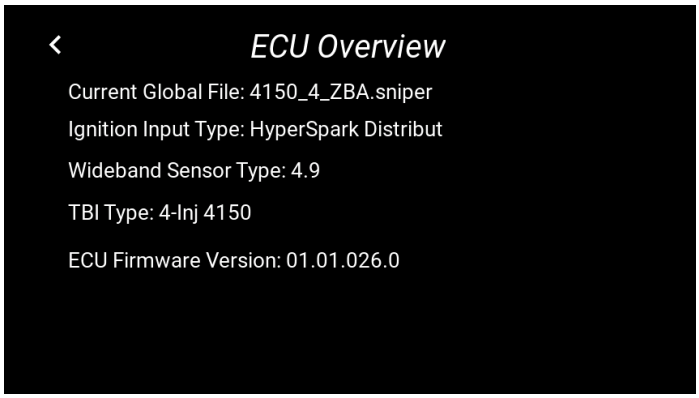


SETTINGS

Choose Settings from the HOME screen to access ECU and 5” touchscreen information. This is also where ECU logging and Global Folder transfer menus are located.

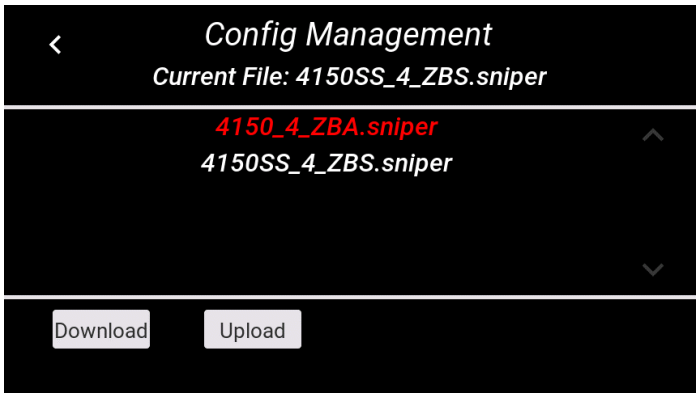


ECU OVERVIEW:



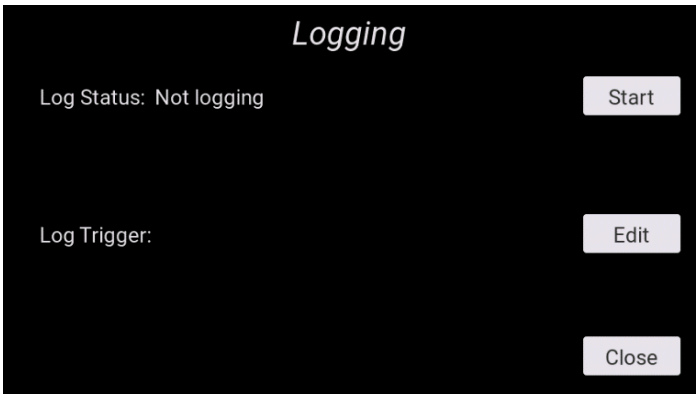
Information specific to the engine and ECU configuration is shown here, these include the name of the current global folder, transmission type, ignition input type, WBO2 type, throttle body type, fuel system type, and ECU firmware version. Note that this menu is view only – no information can be changed. Any changes to engine or transmission setup must be done through the TUNING or WIZARDS menu.

ECU GLOBALS:



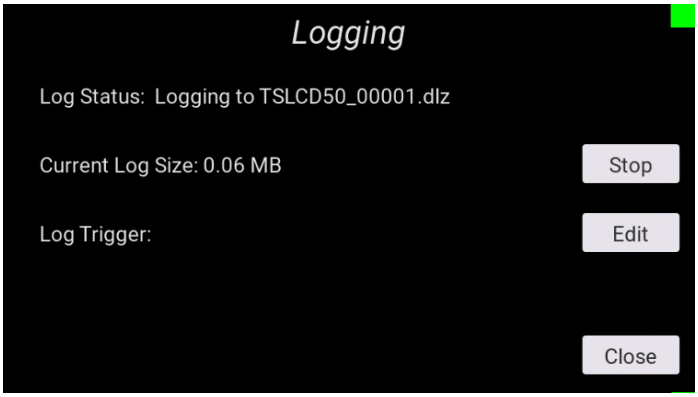
This menu will list any global folders that have been saved to the SD card. It will also allow you to download a global folder from the ECU to the SD card so that it may be opened on any Windows based PC with free Sniper EFI software installed. Software may be downloaded at: https://www.holley.com/support/fuel_injection/sniper_efi/

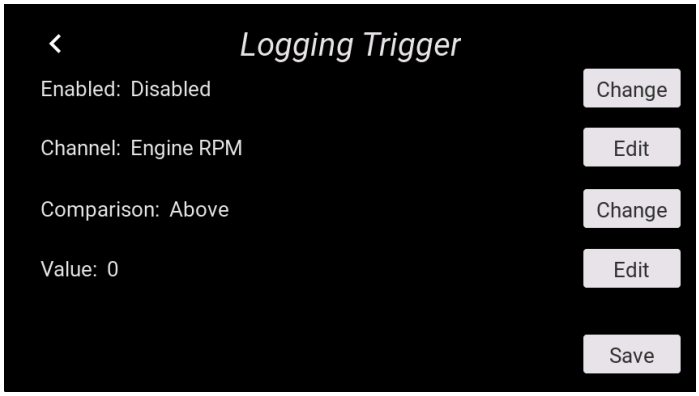
ECU DATA LOGGING:



Sniper systems come standard with powerful data logging capabilities. Logging can be stopped and started via the 5” Handheld, with the SD card inserted, press Start to being the data log. To stop the log, Press the Stop button, or cycle the ignition power.

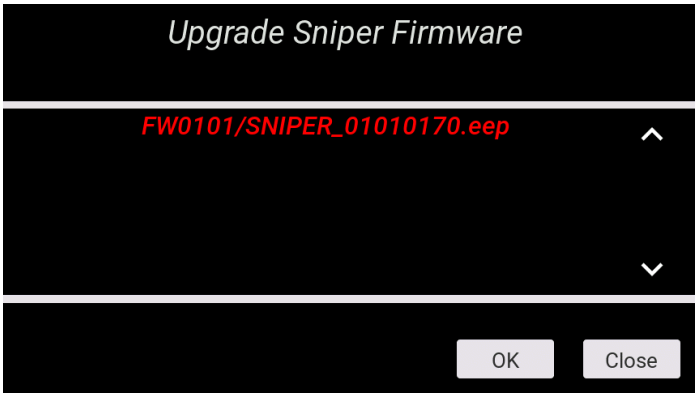
The Sniper 5” Dash Data Logger will also allow you to set a log trigger, based on a variety of channels, such as Engine RPM, TPS, or MAP. This method of triggering a datalog can be using when trying to capture data under a certain of condition, such as boost pressure above 4psi, or RPM above 5500.





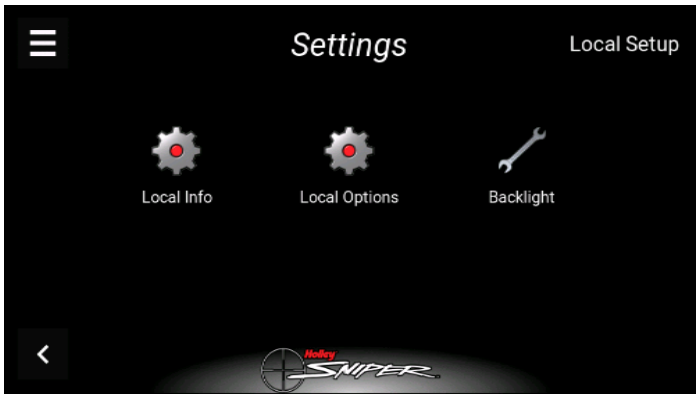
ECU UPDATE:

Use this menu to update ECU Firmware. Choose the .eep file you are updating the Sniper EFI ECU to. If there are more than 1 versions of firmware on the SD Card all versions will show up and you will need to choose the correct version.



LOCAL SETUP:

Contains Local Info, Local Options, and Backlight adjustments.

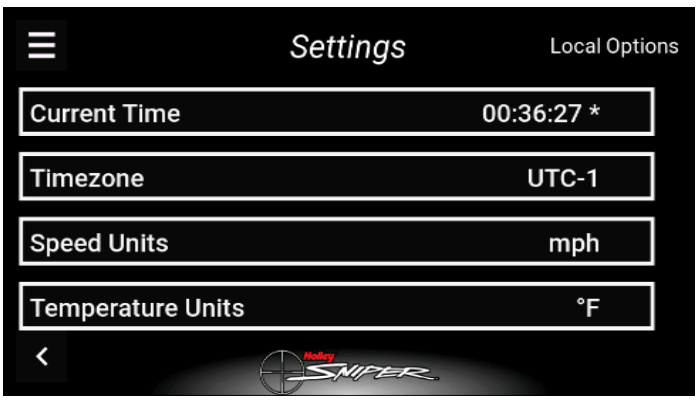


LOCAL INFO

Displays device information and current Firmware Version.

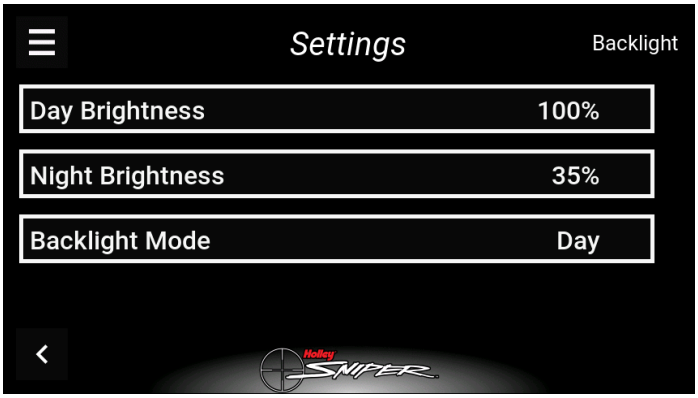
LOCAL OPTIONS

This menu allows you to adjust the display for your local Time and Time zone, Speedometer Units, and Temperature Units.



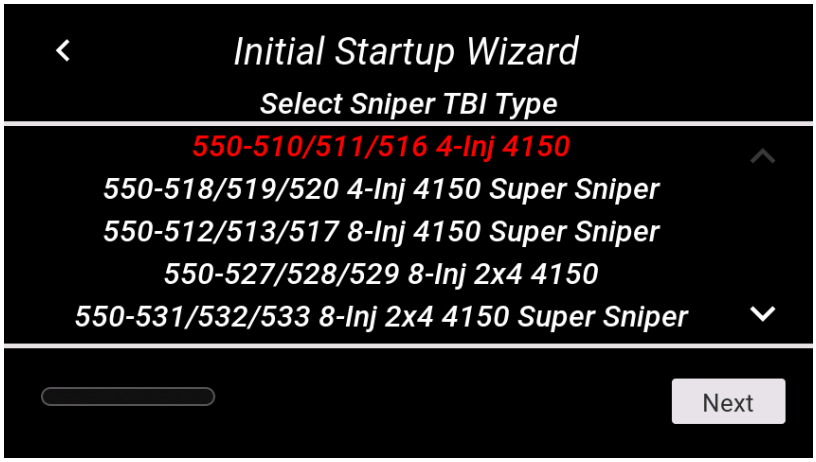
BACKLIGHT:

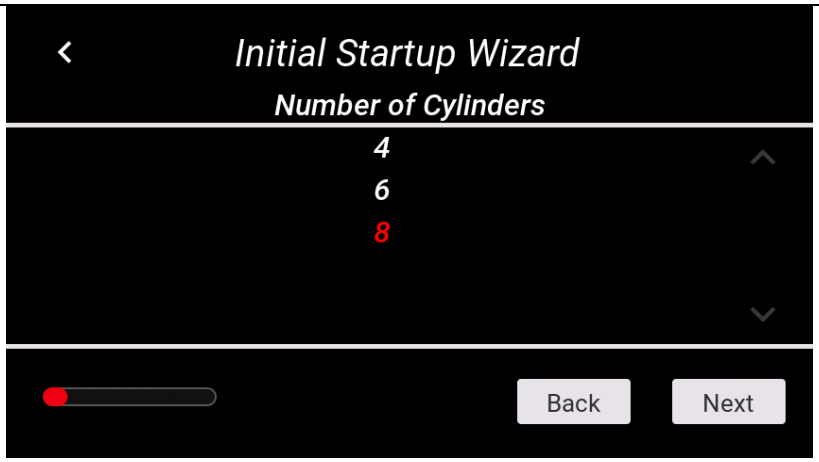
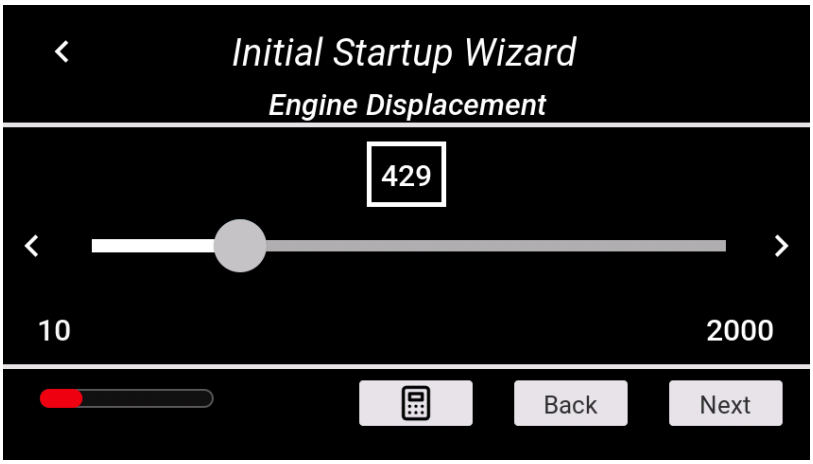
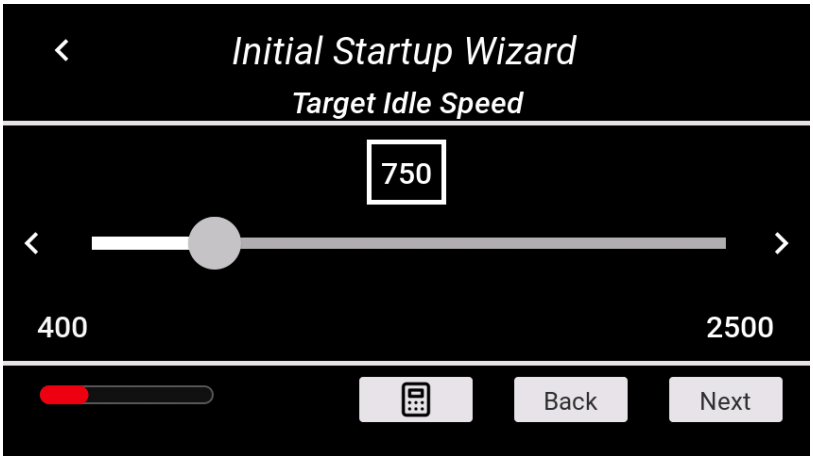
Can adjust a Night Brightness & Day Brightness defaults, which is toggled by pressing the Sniper EFI logo on any of the Monitor Screens or within the Backlight Settings menu.



WIZARD

The GCF Wizard is a base calibration selection tool used with Sniper EFI kits. Using the part number of the specific Sniper EFI kit, the questions may vary. At the end of the wizard a key cycle is required. After this key cycle the Sniper EFI ECU will have the calibration created by the Wizard loaded into it, and ready to start.

Step 1 Select WIZARD from the main menu.	
Step 2 Select your Sniper system type – – Press Next	

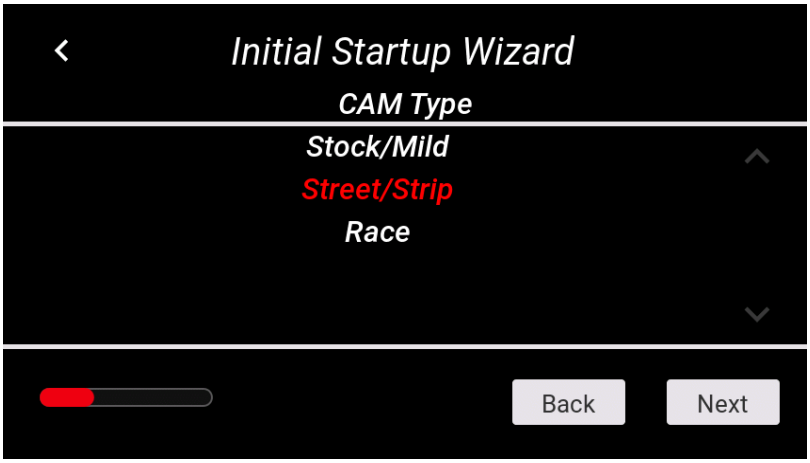
Step 3 – Select the number of cylinders your engine has – Press Next	
Step 4 Select displacement of your engine, you can do this with the slider bar, or the calculator icon at the bottom. – Press Next	
Step 5 Enter the desired HOT Idle speed of your engine. This is the RPM the Sniper will target once the coolant temperature raises to 160F and above. – Press Next	

Step 6

- Stock/Mild = This selection will work well on most applications equipped with stock or “street performance” camshafts.
- Street/Strip = Select this if your engine has between 8” and 13” of manifold vacuum
- Race = Select this if your engine has less than 7” of manifold vacuum. Race oriented camshafts may require laptop tuning for optimal idle stability.

Choose Stock/Mild If you are unsure of your camshaft specs

– Press Next



Step 7

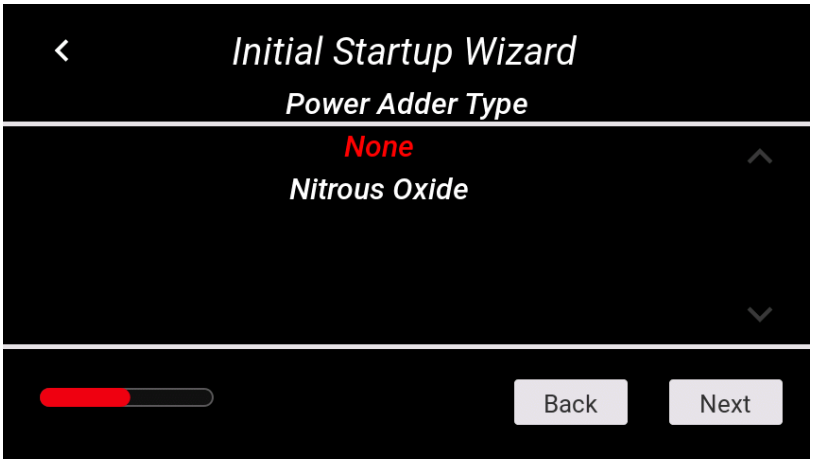
- Select power adder type

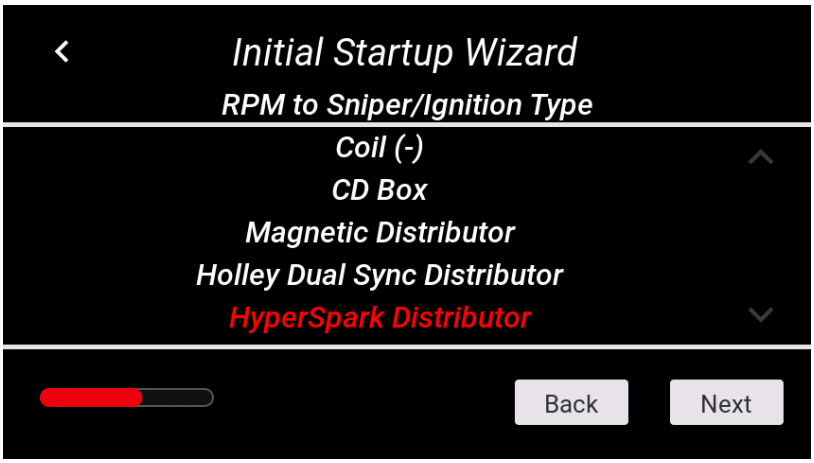
• None for Naturally Aspirated Engines

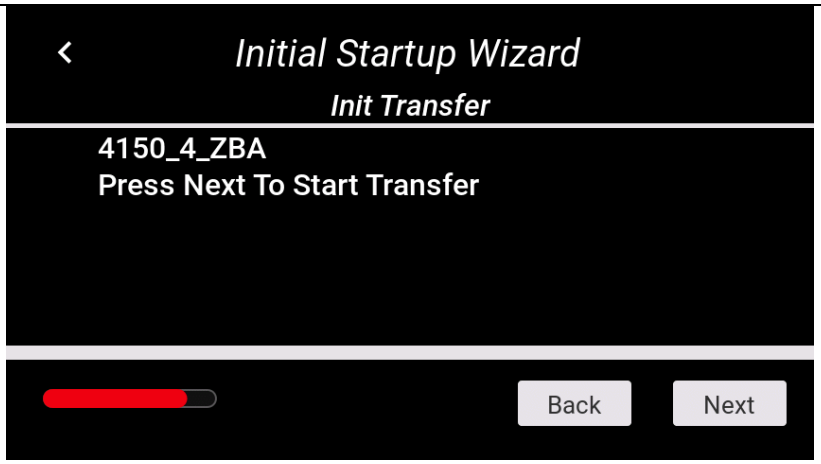
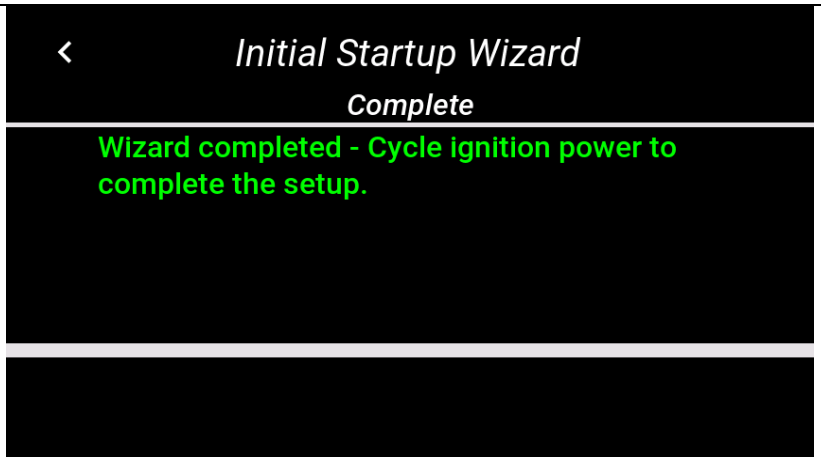
• Nitrous Oxide

Super Sniper Kits will have additional options for Turbo and Supercharger.

– Press Next



Step 8 Select your ignition type. Coil (-) and CD Box are Non Timing Controlled options. For timing control, you must run either a Magnetic Distributor, Holley Dual Sync, or HyperSpark. **Note *This selection is based on what is the ECU getting an RPM Signal from, in majority of applications this selection should match the type of distributor being used, regardless of the type of CD Box*** – Press Next	
Step 9 Enter the optimal WOT ignition timing for your engine. Most domestic V8 engines normally target between 32 and 38 Degrees at WOT. – Press Next	

Step 10 The calibration is now complete – Press Next to send this calibration to your Sniper ECU. – Press Next	
Step 11 The initialization Wizard is now complete. Cycle the ignition power. Congratulations, your engine should be ready to start!	

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