ELECTRONIC FUEL INJECTION

Holley EFI Digital Dash

User Manual

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Introduction

The Holley EFI Digital Dash is completely customizable with a variety of gauge and indicator screens that can be programmed to display any parameter you need. Users can select from pre-configured layouts, or personalize their own. The dash also offers a virtual switch panel, user defined alarms, configurable shift lights and can control on-screen playback of your EFI data logs. This all new Holley EFI Digital Dash claimed the **SEMA New Product Award** for **Best Engineered New Product 2015**.

The Holley EFI Digital Dash measures 7.5" wide, 4.625" tall and 1" deep, making it a compact, customizable dash for use in a variety of motorsports applications. The Dash features a 7" low glare, high brightness, high contrast, full color touch screen for easy viewing even in full sun, plug and play connection to all Holley EFI systems as well as a weather proof aluminum housing featuring flexible mounting options. Monitor the power of your Holley EFI system at a glance!

Quick Start Guide

A CAN/power harness is supplied with the digital dash. Connect the black wire to negative, white wire to a switched +12V circuit.

Connect the harness from the CAN connector on the vehicles main harness to the digital dash using the supplied 4' CAN/Power extension

Once all connections have been made the Holley EFI Digital Dash may be powered up. After a brief initial loading sequence the gauge display will appear.

Package Contents

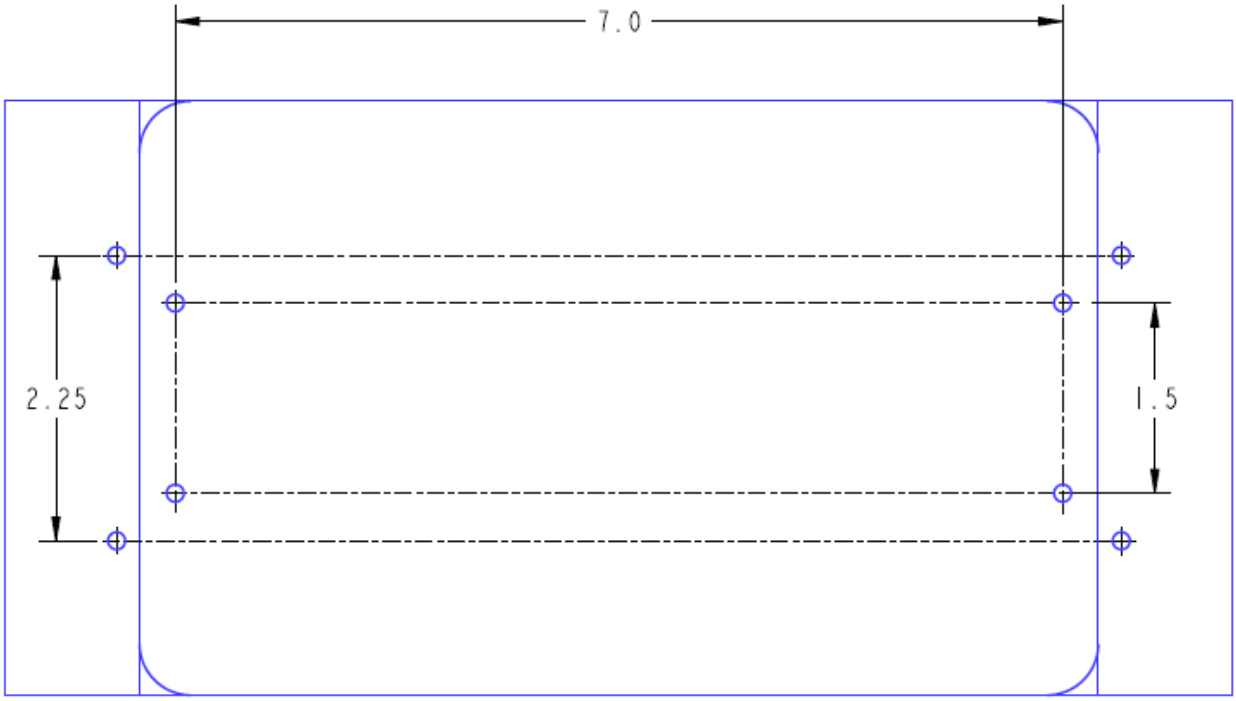
Specifications

General

- Weather-proof aluminum housing engineered to withstand harsh racing environments
- 7" Low Glare, High Brightness, High Contrast, Full Color Touchscreen
- 800x480 Resolution
- Operating voltage 8V - 20V
- Auto Brightness
- Plug and Play connection with all Holley EFI systems via CAN bus
- Completely customizable display of all EFI parameters including every user configured input and output
- Multiple gauge and indicator types with limitless customization options
- Quickly toggle between two or more active screens (tune, warm-up, race, drive, etc.)
- Virtual switch panel
- User defined channel alarms
- Configurable progressive shift lights and light bar
- On screen playback of EFI data logs
- Download and save Holley EFI data logs to external USB memory stick
- Expandable internal storage on micro SD card
- Flexible mounting options
- Support for future USB devices
- Upgradable with future software/firmware enhancements
- Multiple units can be used simultaneously on a Holley EFI system for larger dashboards
- Internal 3-axis accelerometer

Mounting

The product has eight tapped 8-32 mounting holes to allow the user to surface mount or flush mount the enclosure. There are four mounting holes located on the rear of the unit, and two mounting holes are located on the left and right sides. Included with the contents of this kit is a separate template with a 1:1 layout of the hole locations for fabricating a mounting bracket.

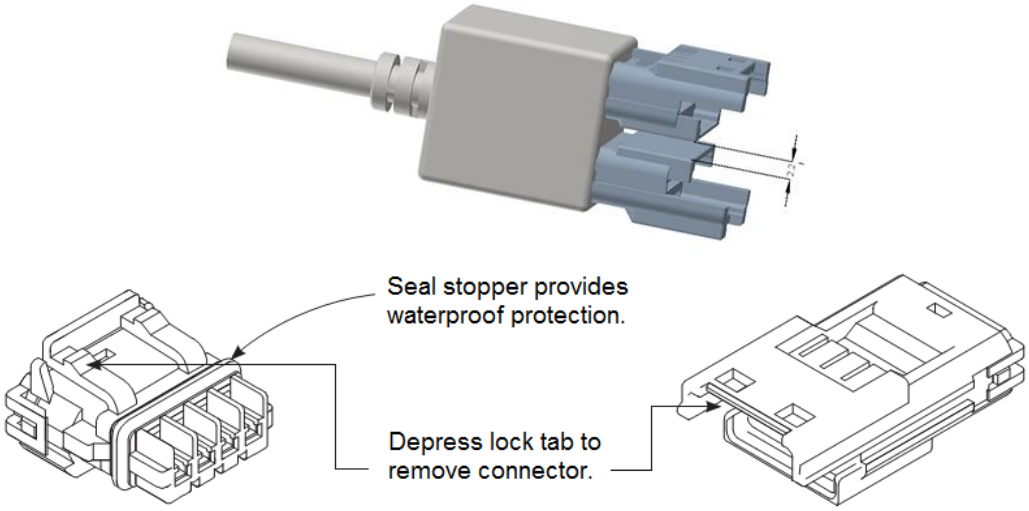


NOT TO SCALE – USE THE TEMPLATE INCLUDED IN YOUR KIT

Connectors

CAN1/Power

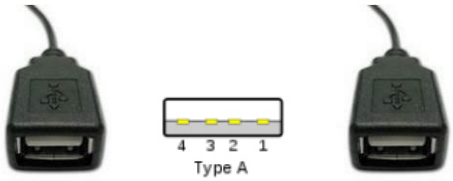
4 pin Mizu-P25 male receptacle connector used to connect main power and to a Holley EFI. The dual connector allows the product to be connected to multiple devices on the CAN bus.



Pin	Function	Color	Description
1	+12V	WHT	Main power in
2	CAN1H	ORG/BLK	CAN_H Holley EFI communications
3	CAN1L	ORG	CAN_L Holley EFI communications
4	GND	BLK	GND

USB

The unit has two standard USB type A receptacles that can accept USB flash drives for saving data logs, uploading gauge screen layouts, background images, or firmware updates.



CAN Adapter Harness

271R1075A CAN ADAPTER HARNESS - used to connect switched +12V ignition power (white wire) and ground (black wire) to the dash, as well as for connecting to the main harness CAN connector.

Using the Dash

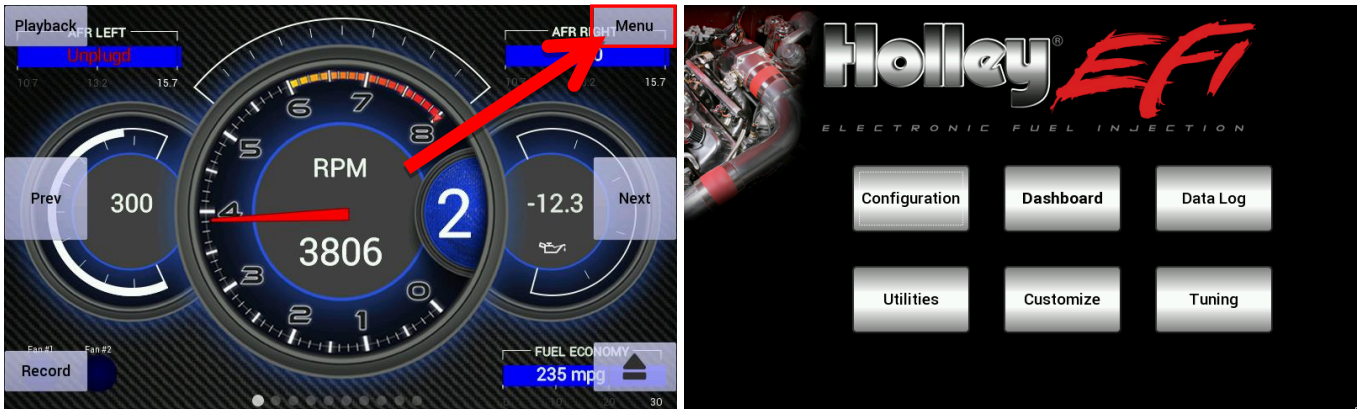
Touchscreen Basics

The Holley EFI Digital Dash has been designed with a resistive touchscreen, meaning it will work with bare skin, a stylus, or even through driving gloves. This dash responds to localized point pressure on the screen, not 'swiping', which is common on capacitive screens found on current smart phones and tablets.

Dashboard

The dashboard will appear when you power on your Dash. There are several screen layouts that can be selected. Press anywhere on the display to bring up the navigational buttons, then choose 'Next' or 'Prev' to cycle through the screen layouts.

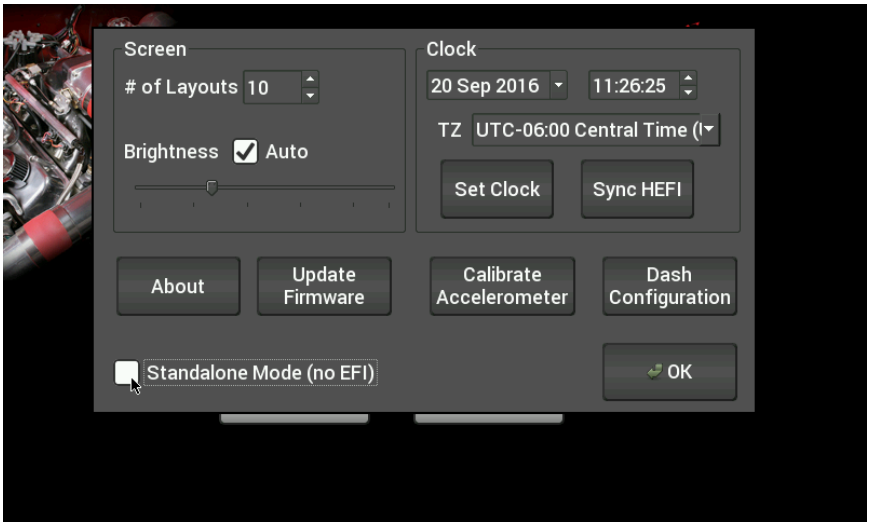
Main Menu



Pressing anywhere on a gauge screen will bring up the navigational buttons. To access the main menu choose 'Menu' in the upper right corner of the screen.

Configuration

The configuration screen allows you to change the display brightness, modify the number of gauge display layouts (screens), update firmware, and calibrate the touchscreen if required.



Standalone vs EFI Connected Mode

The Dash has two main modes of operation, standalone and EFI-connected. If you have a Holley EFI installed in your vehicle, ensure that the standalone mode is unchecked in the configuration menu.

If you are using the Digital Dash without a Holley EFI, select Standalone mode. The EFI specific Datalog and Tuning buttons will no longer be shown in this mode.

Layouts

You may choose the number of layouts or gauge display screens that are configured. An example would be 4 screens, representing tuning, warm up, race, and street.

The Dash will use the last saved layout as the preferred screen to display at power on.

Auto Brightness

The Dash has an ambient light sensor at the lower left corner of the display. This sensor is used to set the backlight brightness when auto brightness is enabled. If this sensor is covered, the auto brightness feature will not function.

Press on the “Auto” beside brightness to enable the auto-brightness function. For manual brightness control, use the slider to adjust the screen brightness.

Clock

The Dash has an internal real-time clock that can be adjusted using this screen. If you connect the 554-140 10Hz USB GPS to the Dash, please ensure the time zone is set correctly as the Dash will automatically set the clock using the GPS time.

About

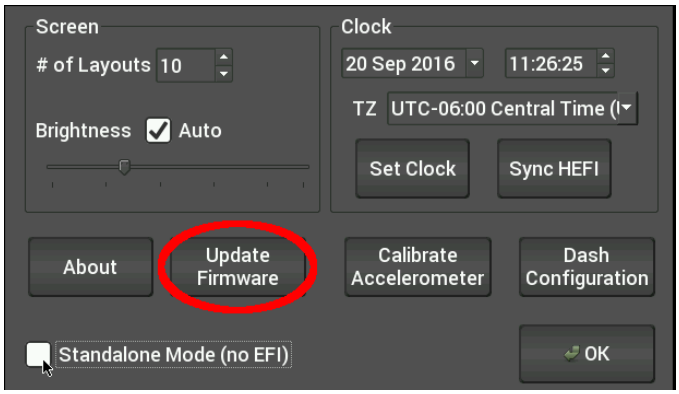
This screen contains firmware and software version information along with the CAN id for the Digital Dash. When connected with a Holley EFI it will show details of the connected EFI.

Update Firmware

New or additional features developed by Holley can be added to the Digital Dash by updating firmware. These updated firmware files can be obtained by contacting tech service (270-781-9741 or 1-866-464-6553) or they may be downloaded from our website (https://www.holley.com/support/resources/#Fuel_Injection).

To perform a firmware update, follow these steps:

1. Extract the contents of the firmware .zip file onto a USB memory stick
2. Connect the USB memory stick to one of the USB cables on the Digital Dash.
    a. If the unit is off, the firmware update may take place automatically as soon as the Dash is powered on with the USB stick plugged in. No further action is required.
    b. Select the About button to verify that the desired firmware version is shown.
3. If the desired version number is still not shown, select ‘Update Firmware’ from the Configuration menu and follow the on screen prompts. Verify the version number using the About button after turning the dash off and on again.

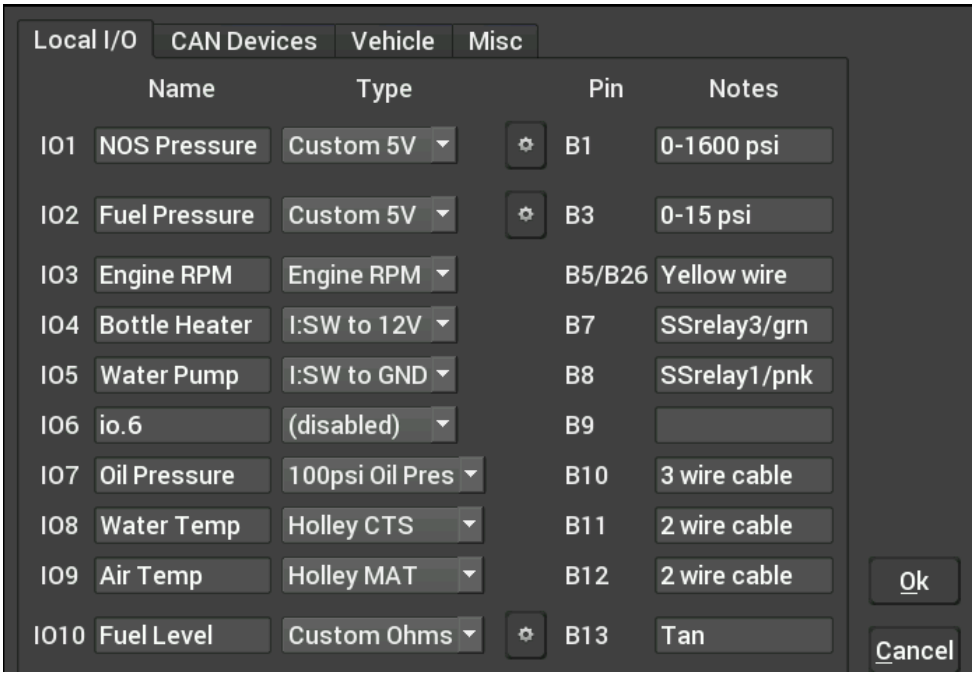


Dash Configuration

This option configures the local dash settings.

Local I/O Tab

Configures the inputs and outputs that are available using the 558-432, 558-433 or 558-434 I/O Adapter. Consult the I/O Adapter Instruction manual for more information on configuring the Local I/O tab. Pin refers the physical pin number on the I/O Adapter.



Switch to Ground (SW to GND) Special Functions

The *switch to ground* inputs can be used to control some of the functions of the dash. These can be wired to buttons on a steering wheel or other easily accessible location.

To use, enter the desired keyword in the Name field as shown in the table. You must include the square brackets, case is not sensitive.

Keyword (Name field)	**Function**
[next]	Display the next screen layout
[prev]	Display the previous screen layout

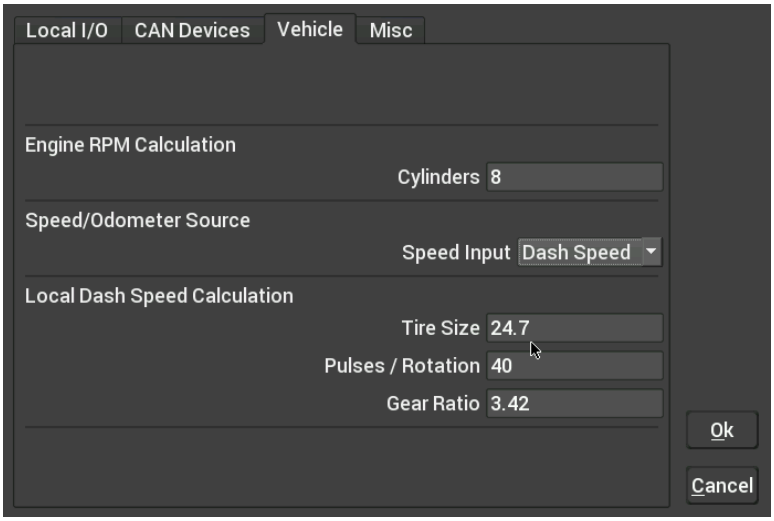
The dash will provide a low current pullup source on each input designated as SW to GND.

CAN Tab

Configures CAN-connected devices such as the Holley 553-107 LED Light Bar.

Vehicle Tab

Contains settings that control the input channel that drives the internal odometer and local RPM and speed calculations. The odometer can source can be selected from EFI Transmission Speed, an EFI input, local Dash speed input using the optional I/O adapter (558-432) or with the optional GPS (554-140).

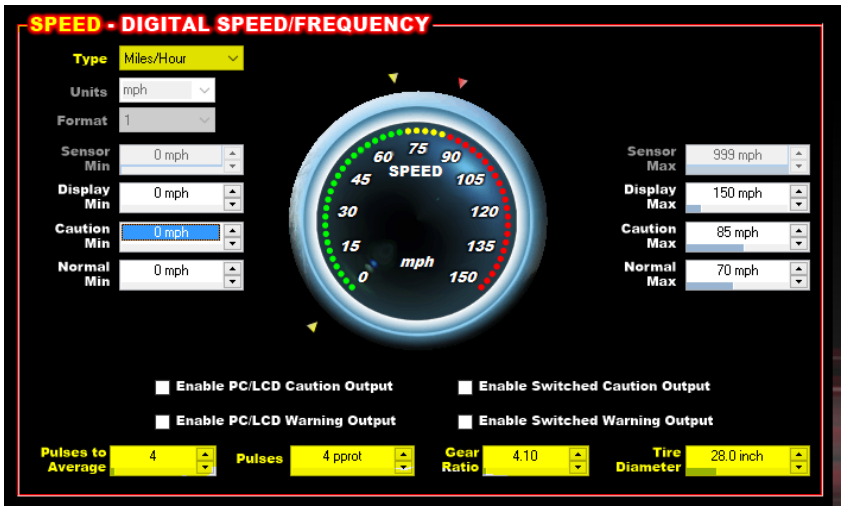


Trans Speed: Use with supported transmission. Requires that you have a properly setup transmission ICF in your Dominator ECU.

GPS Speed: Use this setting with the Holley 554-140 GPS module. No additional setup is required.

Dash Speed: Use this setting when you want the speedometer and odometer to read from a speed sensor going directly to the dash on IO3 or IO4 of the optional I/O adapter harness 558-432. This is the only setting that requires you to fill out the Local Dash Speed Calculation area on the Holley Digital Dash.

ECU Input: Use with a custom speed sensor input from the I/O section of your Holley ECU. The ECU input must be named “speed” and the units set to miles/hour for the odometer to report distance accurately.



Misc Tab

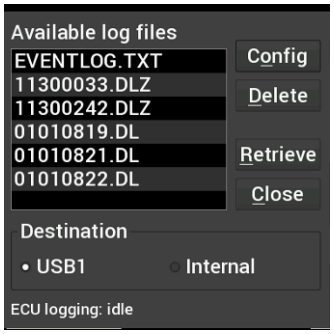
The touch screen is calibrated at the factory and should not require any adjustments. If the touch screen drifts due to environmental factors it can be re-calibrated from this menu.

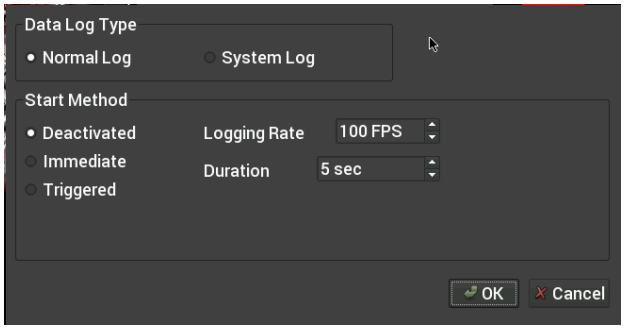
Dashboard

This selection returns you to the operational dash layout.

Data Log

The Holley EFI Digital Dash allows you to retrieve, delete and configure data logging with the attached HEFI. Data logs can be saved internally or to a USB memory stick for viewing on a computer.





Utilities

The utilities menu is described later on in the manual.

Customize

Select this button to enter gauge customization mode. These functions are covered later on in the manual.

Customizing Your Layout

Choosing ‘Customize’ from the Main Menu enables the gauge customization mode. Entering this mode will allow any of the preconfigured layouts to be modified, or one may be built from scratch.

Gauges can have independent warnings and ranges set, even if they are connected to the same monitored value.

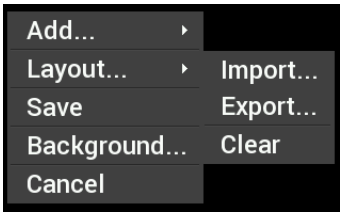
Import/Export

The import function will load any saved gauge layout (.ini file) to the active screen. The export function will allow any gauge layout to be saved internally or to a USB Memory Stick. Preconfigured layout examples and filenames are outlined later in this manual.

Starting from a Blank Layout

To begin building a custom layout from a blank template, touch any bare area of the background.

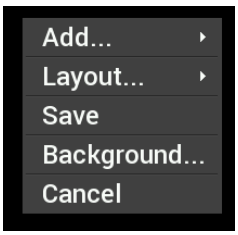
Choose Layout > Import > Clear



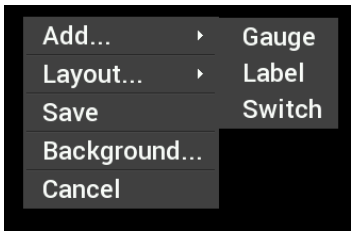
Adding Gauges

Press on the display where you want a gauge to appear, then click Add > Gauge > Value to Monitor > Gauge Type. Once you have selected the gauge type you will be asked to select the value to monitor. Every available EFI channel including user configured inputs and outputs will be shown in this list (see Appendix A). Once the value is chosen the gauge will be placed on the screen.

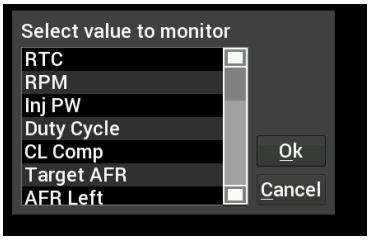
1. Select 'Add'
2. Select 'Gauge'
3. Select Value to Monitor
4. Select Gauge type



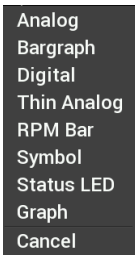
Step 1



Step 2



Step 3



Step 4

Gauge Types

See page 14 for pictures of all gauge types.

Analog
Traditional style gauge with a sweeping needle

Bargraph
Bargraph gauges can be oriented horizontally or vertically.

Digital Meter

Numeric value readout

Thin Analog

Round gauge with a sweeping bar instead of a needle.

AFR Meter

The AFR meter is more of a lean/rich indicator. There is a green target that shows the current Target AFR that is programmed in the map. In closed loop, the gauge face will rotate so that the target AFR is pointing 'north' on the gauge. The needle and digital value shows the current AFR reading.

In this fashion, if the needle is pointing to the left the engine is running rich, and if the needle points to the right the engine is running lean.

The AFR meter option will only appear on AFR channels.

Symbol

The symbol gauge type will change its color based on settings in the warnings section for this gauge. This can be used to display an automotive symbol warning light or normally hidden text that will be displayed when an alarm condition is reached.

Status LED

The status LED illuminates when the monitored value reaches the programmable caution high or low values.

Graph

The graph type show a plot of a monitored value.

RPM Bar

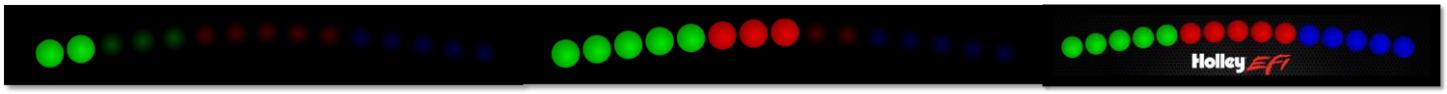
The RPM bar consists of 10 LEDs, comprising three programmable ranges.

- The Green LEDs illuminate from the *minimum range* value to *normal high* value.
- The Red LEDs illuminate in the *Normal High* through *Caution High* values.
- The 5 Blue LEDs illuminate once *Caution High* is exceeded.

A standard configuration for a 7000 RPM shift would be to set:

- Minimum range to 4000
- Normal high to 6500
- Caution high to 7000 rpm

The color of each zone can be chosen by the user.

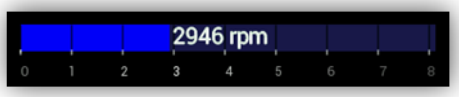


RTC Channel

RTC is a clock and can be configured as an analog or digital gauge.

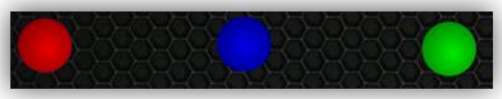
Gauge Type Examples:

ANALOG



BARGRAPH

DIGITAL METER

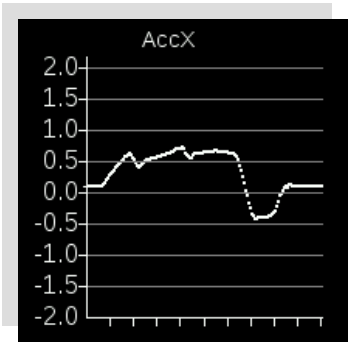


STATUS LEDS

RTC

AFR METER

THIN ANALOG

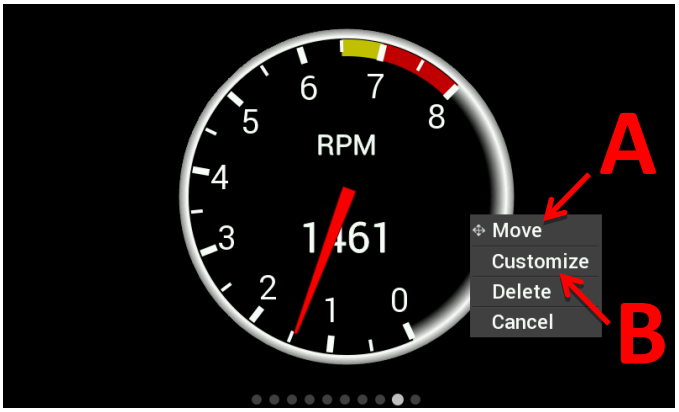


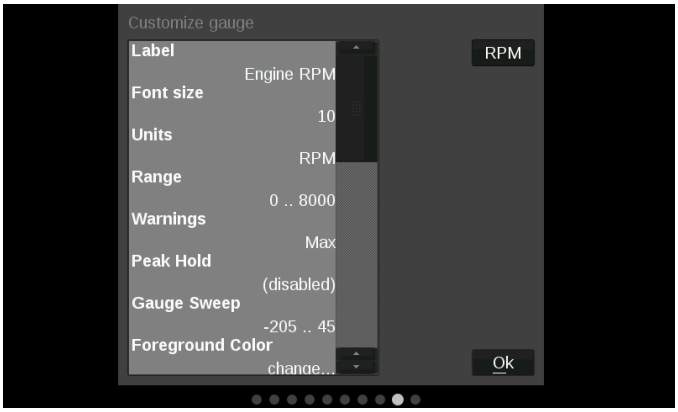
GRAPH

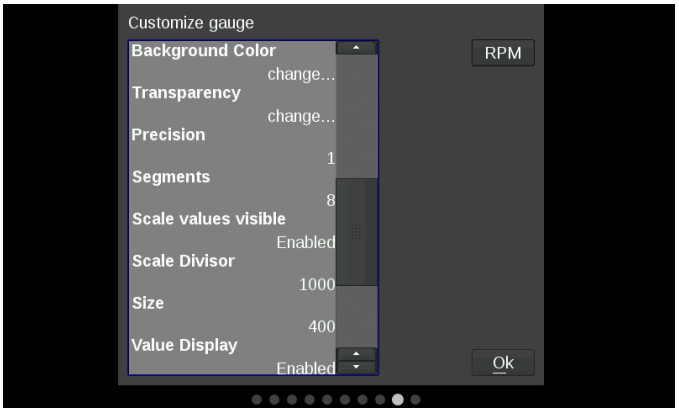
RPM BAR

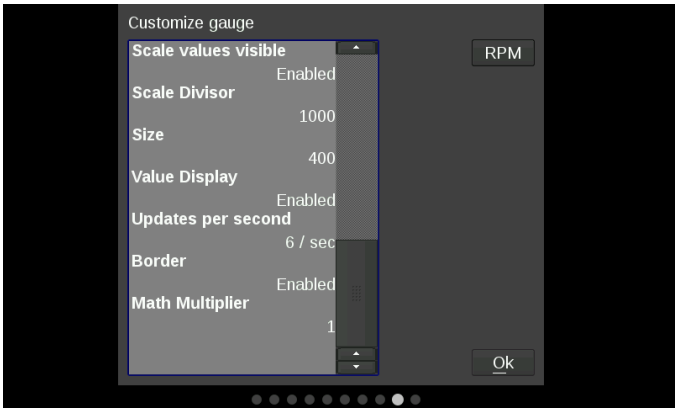
Customizing the Gauge

While in ‘Customize’ mode, touch the gauge you would like to modify and a menu will appear. To move the gauge select ‘Move’ (A) and drag the gauge to place it in the desired location. To customize the visual properties and warning indicators, select ‘Customize’ (B) from the pop up menu. In the scroll window you can see the parameters that are configurable.



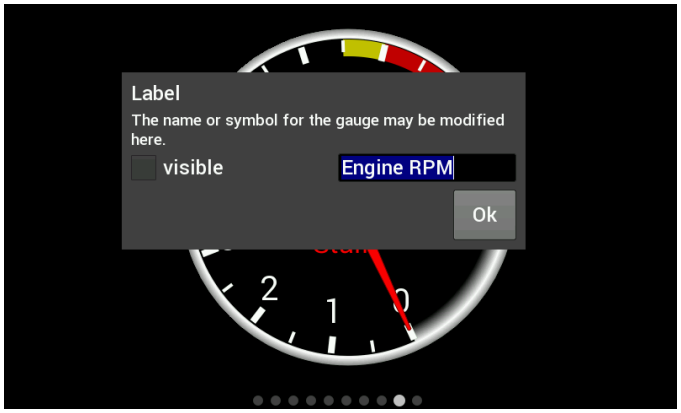


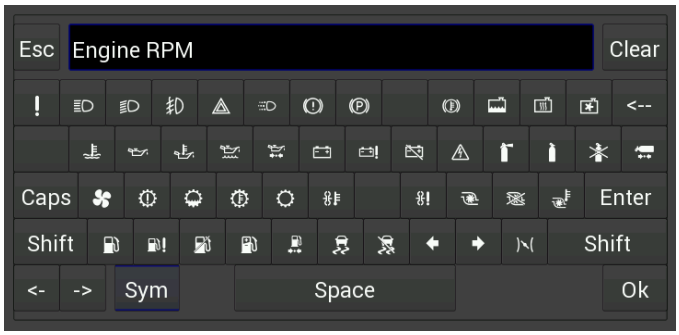




Label

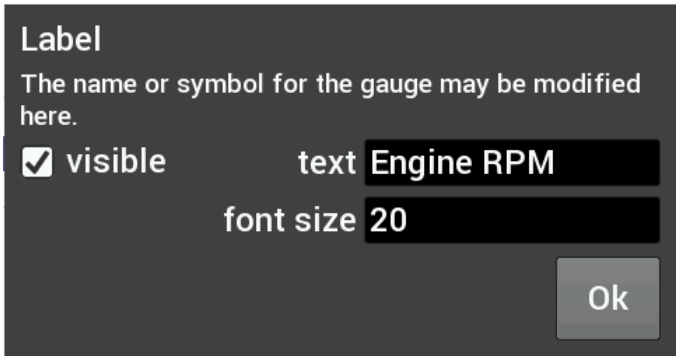
The Label is used to name the gauge. Use the ‘Visible’ check box to enable or disable it. To edit the label, select the text box and a full keyboard will appear. To use a symbol instead of text, touch the ‘Sym’ button. There are two Symbol keyboards, pressing the shift key will toggle between the two. When finished, press ‘Ok’.

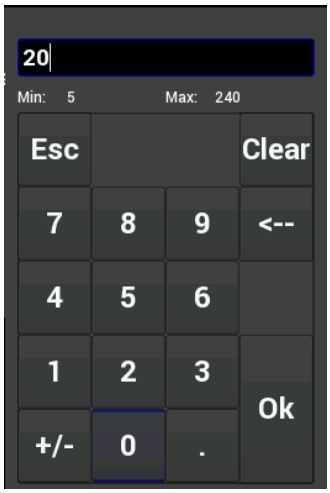




Font Size

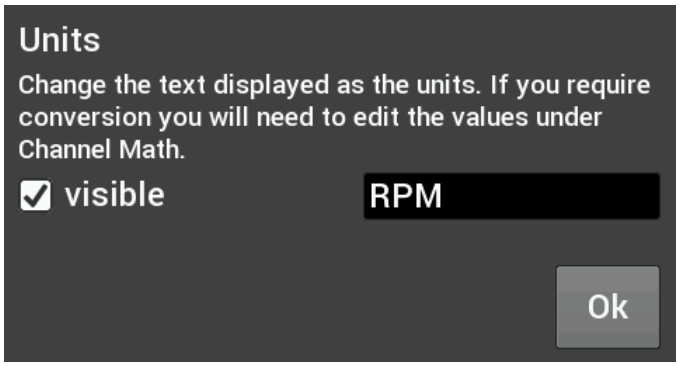
This is used to adjust the font size of labels within the gauge. Touch inside the text box to bring up a number keypad. The top of the keypad will display the minimum and maximum text size values (in pixels). In this case, the minimum is 5 and maximum is 240.





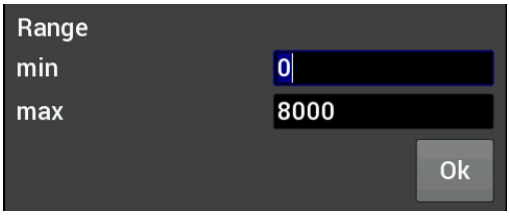
Units

The 'Units' label can be modified in the same fashion as the gauge label. To do this, touch inside the text box to bring up the keyboard. When finished, press 'Ok'.



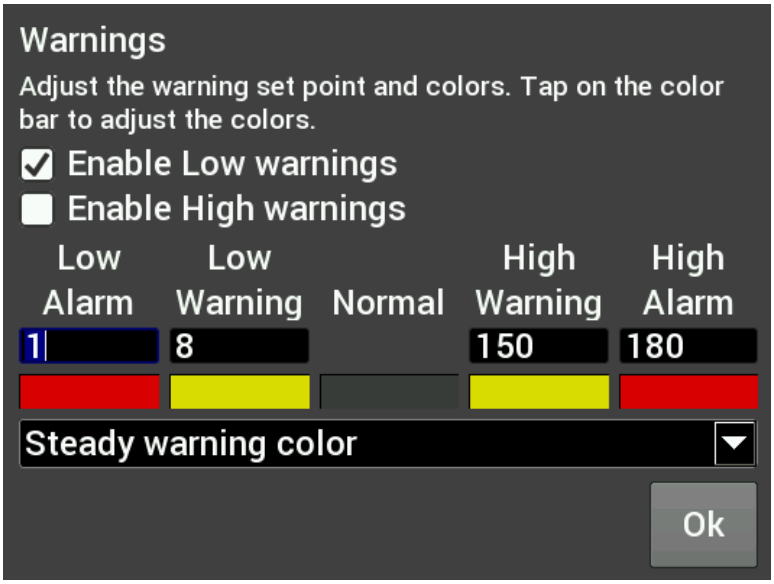
Range

This will adjust the minimum and maximum display range of the gauge.



Warnings for Gauges

Configuring warnings will dictate when the gauge changes colors. When values reach the Low Warning or High Warning value, the gauge face will change to the color beneath that value. When the gauge value reaches Low Alarm or High Alarm, the gauge face will change to the corresponding color. You can click on the color bar beneath the values to change the corresponding color.



Warnings for LED Status Lights or Symbols

In the case of LED Status Lights, the color of the LED is chosen by clicking on the color bar beneath the warning values. The corresponding enable must also be set. Figure A shows an example of a CTS setup, where the LED would change from blue, violet, green, yellow and red throughout its range of values.

Symbols are similar, which will change color based on its corresponding value channel. In this manner you can duplicate the function of lit symbols on your dashboard.

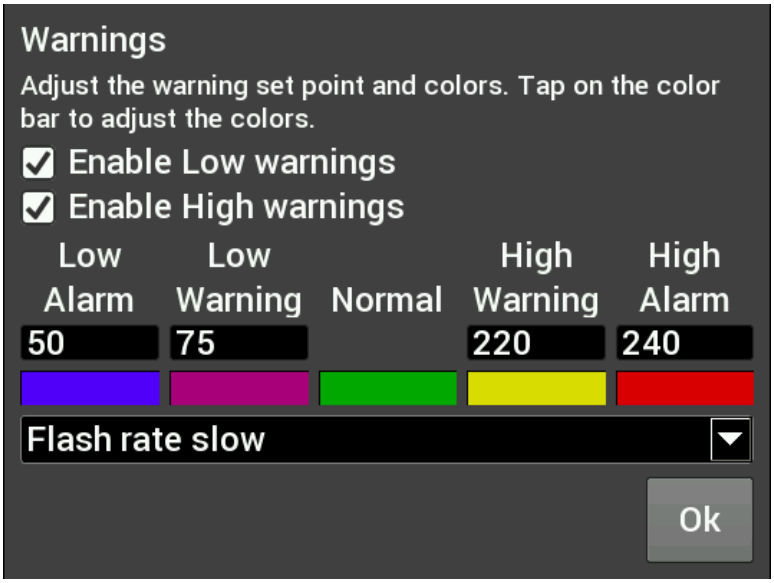


Figure A. CTS Warning Example

Status LEDs for Switched Items (ON/OFF)

A status LED can be lit to show when an item is either on or off. To have an LED lit for when an item is turned on, configure per Figure B. To have an LED lit for when an item is turned off, configure per Figure C. The LED will be grey when in the normal state.

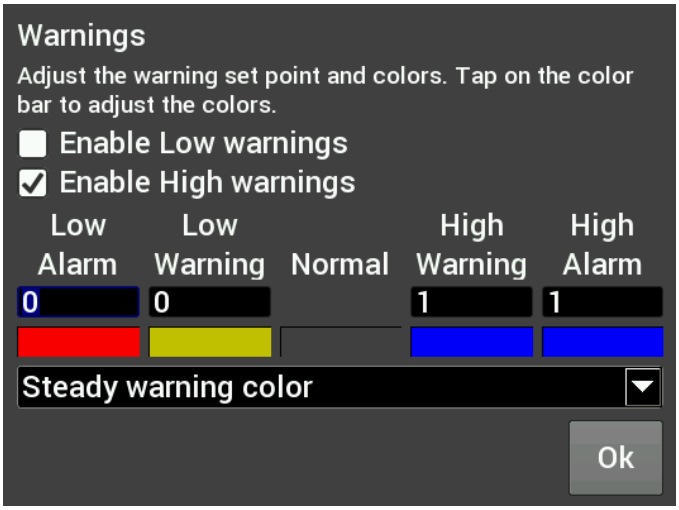


Figure B. Blue LED when output is ON

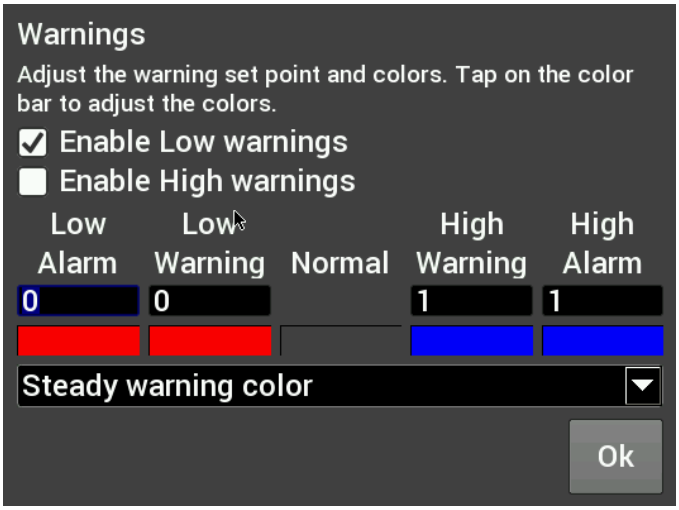
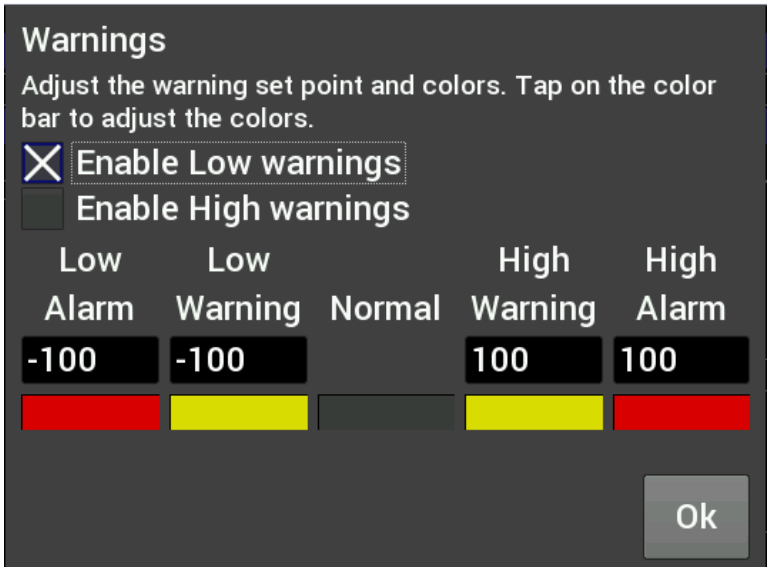
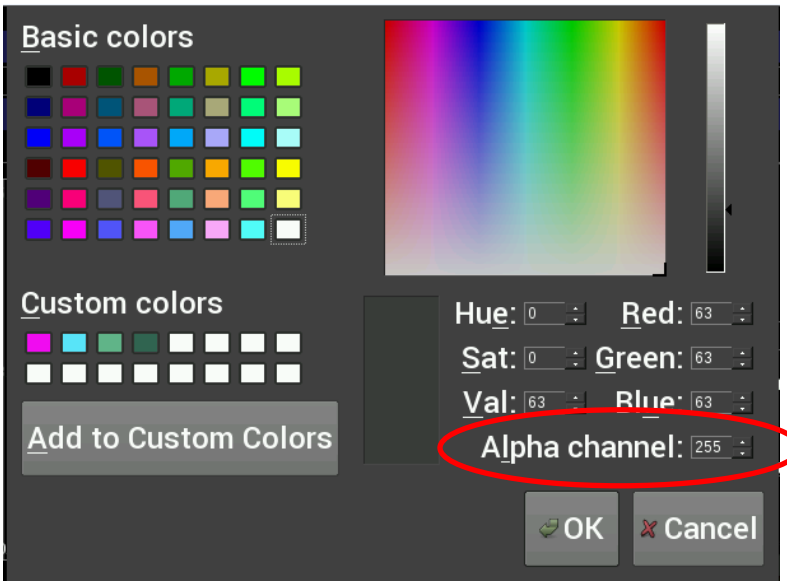


Figure C. Red LED when output is OFF

Full color configuration and Alpha control (transparency) can be used with Status LEDs. Touch the rectangular color bar below the value input box to change colors.



Status LED Configuration

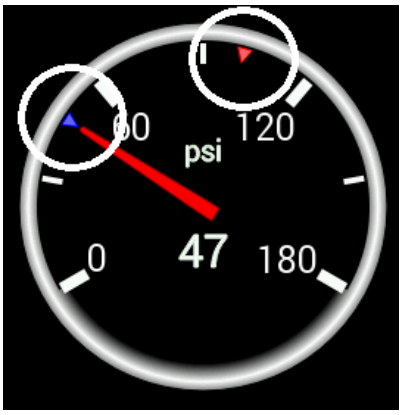


Status LED Color Configuration

Alpha Channel example from left to right (75, 150, 255)

Peak Hold

Enabling the Peak Hold features will place a marker at the highest and/or lowest value for quick viewing. This feature is similar to the traditional 'Tattletale' Tachometers. The minimum peak is shown with a blue triangle, and the maximum peak is a red triangle.

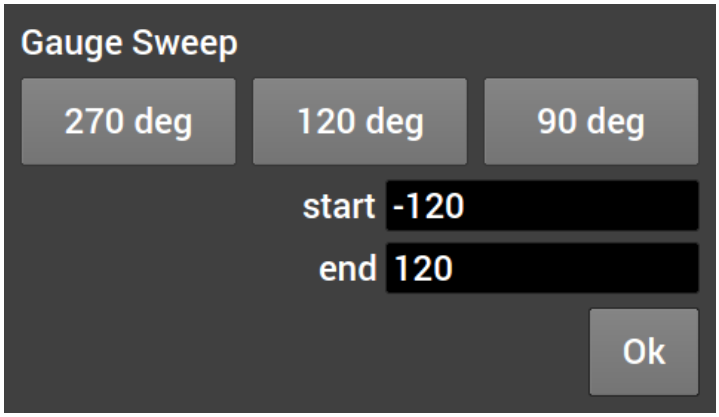


Gauge Sweep

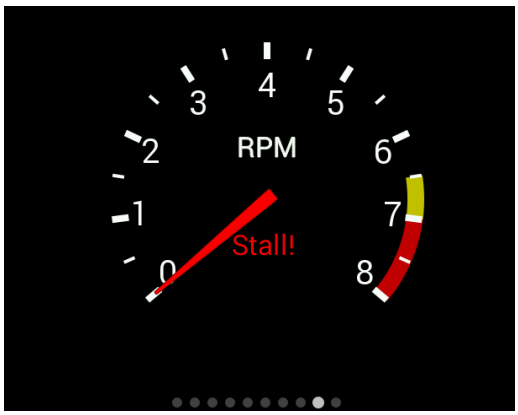
Users can configure the sweep angle of Analog and Thin Analog gauges. These values are in degrees. Positive values are in a clockwise direction and negative values are in a counter-clockwise direction. There are three buttons that will set the sweep to a standard 270 degree, 120 degree, or 90 degree gauge. View examples below.

0°	12 o'clock
30°	1 o'clock
60°	2 o'clock
90°	3 o'clock
180°	6 o'clock
270°	9 o'clock

0°	12 o'clock
-30°	11 o'clock
-60°	10 o'clock
-90°	9 o'clock
-180°	6 o'clock
-270°	3 o'clock

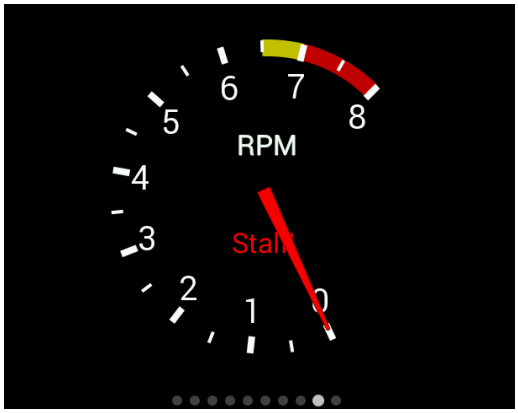


Gauge Sweep Examples:

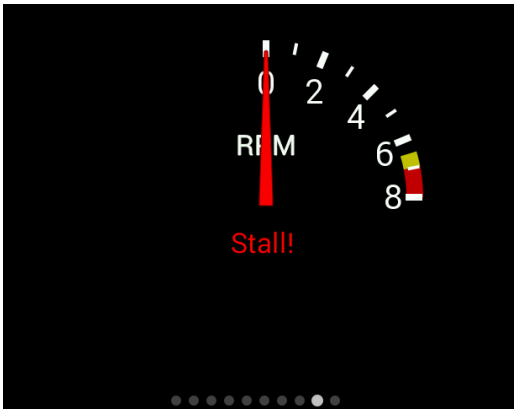


-120 Start / 120 End

120 Start / -120 End



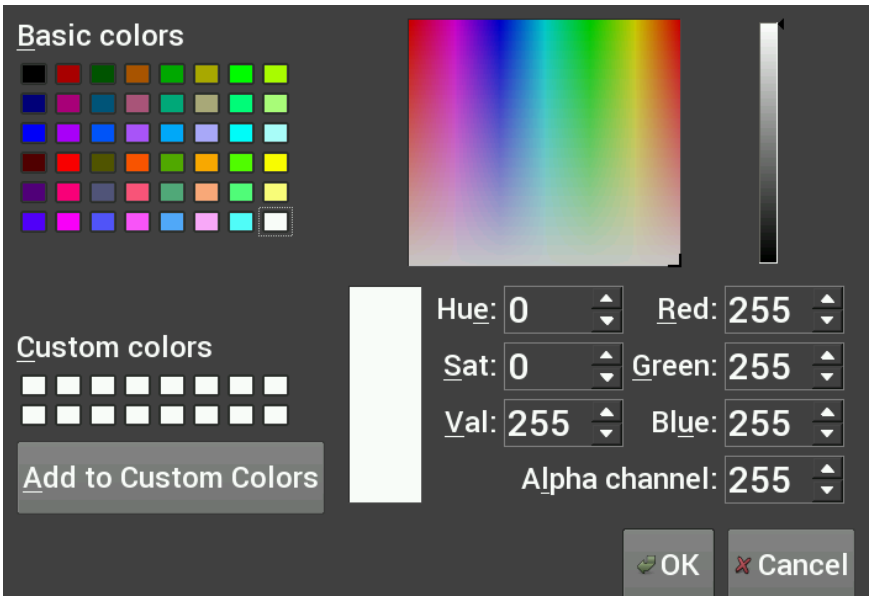
-205 Start / 45 End



0 Start / 90 End

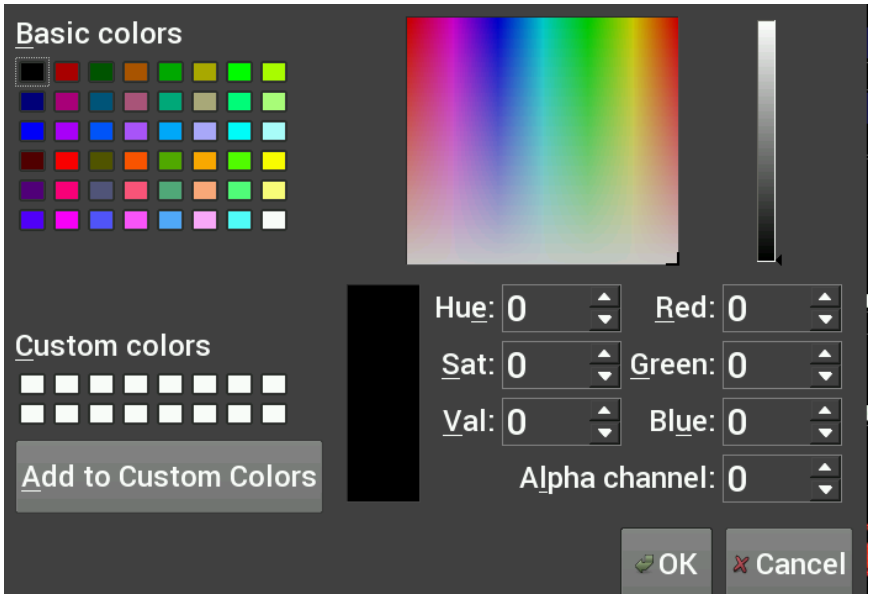
Foreground Color

Changing the foreground color will modify the text, labels and values of a gauge. Use a stylus to drag the crosshair to the desired color. The rectangular box at the bottom of the screen will show a preview of what is being selected. Custom colors can be saved for future use by using the stylus to drag from the rectangular preview box and drop onto one of the custom color boxes at the bottom left of the screen. Choose 'Ok' when finished.



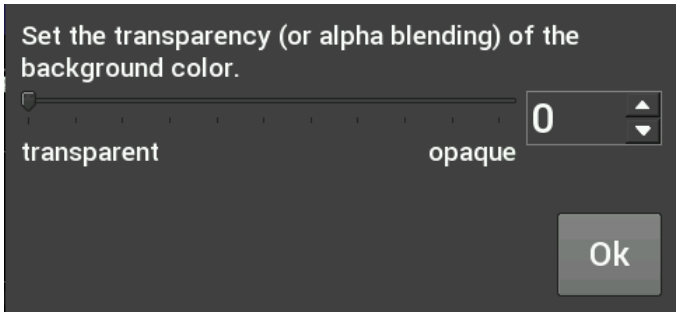
Background Color

Changing the Background Color of a gauge is done following the same steps as the Foreground Color. The alpha channel controls the transparency of the background.

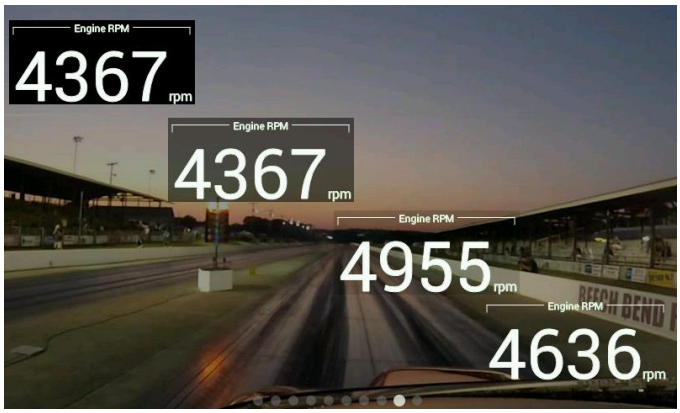


Transparency

The transparency of a gauge background can be modified to achieve your desired style. A value of 255 makes the gauge completely opaque, and a value of 0 makes the gauge completely transparent. This is the same as setting the alpha channel in the color selection box for the gauge background. See the examples below.



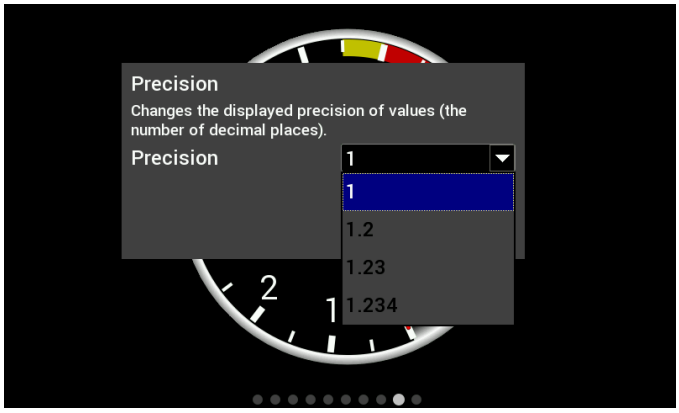
Transparency values are 255 / 125 / 0



Transparency values are 255 / 150 / 65 / 0

Precision

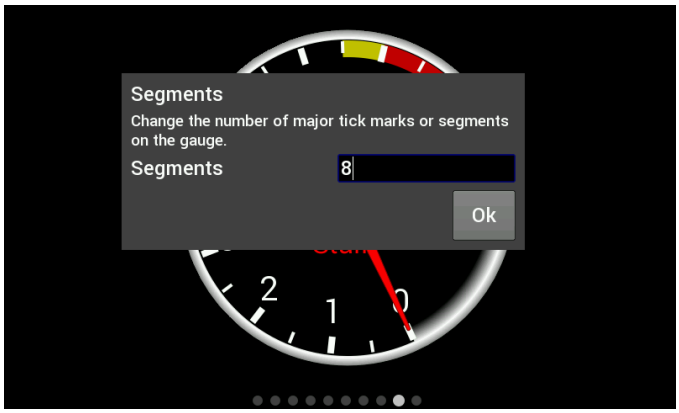
Changing the precision of a gauge will show more or less decimal points after the whole number. Tachometers generally will not use any decimal places; however it may be beneficial to display fuel flow or AFR values with one or more decimal place.



Segments

Users can configure the number of segments on gauges. For example, a 0-8000 RPM tachometer with 8 segments would be divided into 1000 RPM increments. A 0-16,000 RPM tachometer would be divided into 2000 RPM increments.

Choose 0 segments to remove the scale completely.



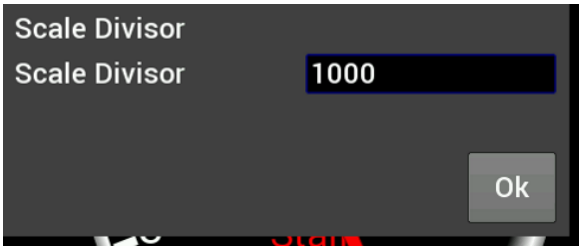
NOTE: Ensure the number of segments is matched up with the range you specify. E.g. If you choose 6 segments in a 0-8000 tachometer range, the scale markers will be at 0, 1333, 2667, 4000, 5333, 6667, and 8000. We would recommend using 4 or 8 segments instead.

Scale Values Visible

This will toggle the Scale Values on or off.

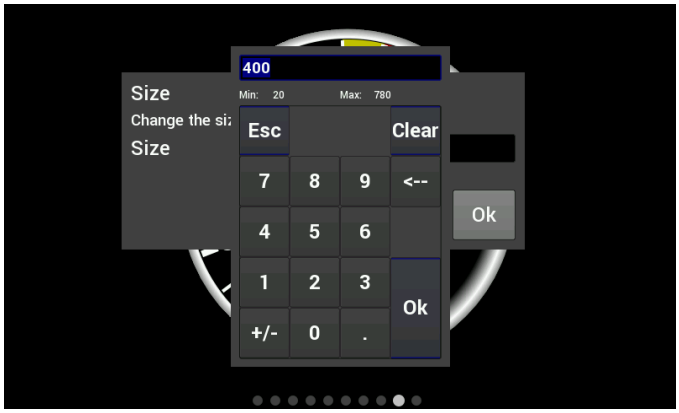
Scale Divisor

This value is the total range of a gauge divided by the number of segments. In this example, if you wanted the Scale Values of the tachometer to display 10, 20, 30… instead of 1, 2, 3… the scale divisor would be set to 100 instead of 1000.



Size

Overall Gauge sizes can be adjusted by increasing or decreasing their pixel size. The minimum and maximum values are displayed near the top of the number keypad. In this case, the min is 20 and the max is 780.

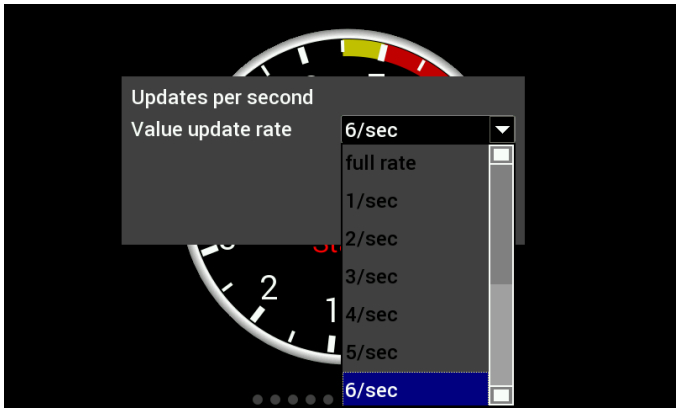


Value Display

When Value Display is enabled, a digital meter will appear inside an analog gauge showing real time values in addition to the needle indicator.

Updates per Second

This changes the speed at which values are refreshed on the dash and can be changed from 1/sec to 10/sec or full rate. These should be adjusted upon user preference.



Border

Borders around certain gauge types can be enabled or disabled by toggling this selection.

Channel Math

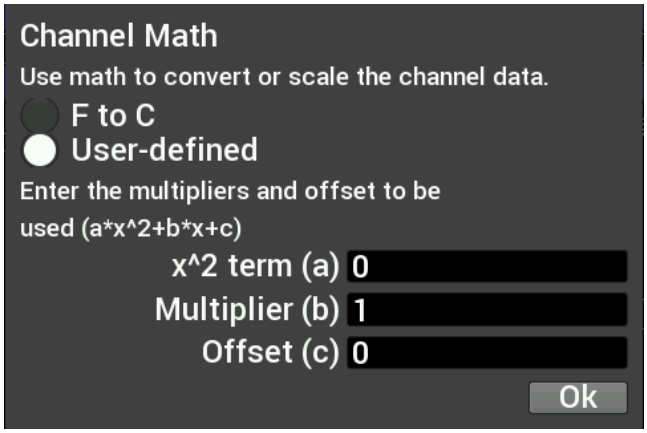
Channel Math can be used to perform unit conversion on any gauge. The default value is '1' and this should be used if no conversion is desired. Any unused value may remain zero.

For simple multipliers use the 'Multiplier (b)' box. (Example, enter '1.60934' to convert MPH to KM/H).

Conversion	***a***	***b***	***c***
PSI to kPa	0	6.895	0
kPa to PSI	0	0.145	0
MPH to km/h	0	1.60934	0

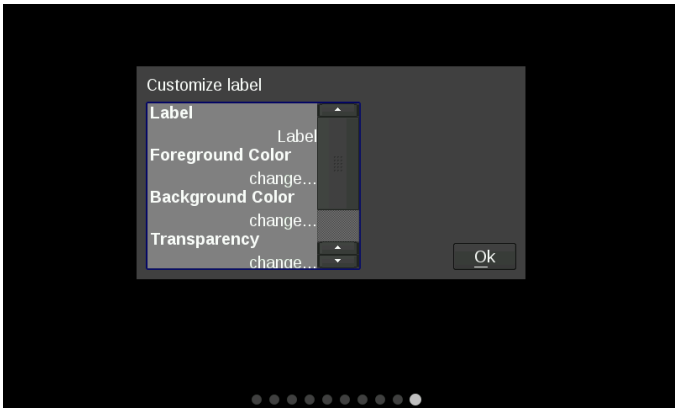
Temperature gauges can from °F to °C by using the 'F to C' radio button. Selecting this option will automatically update the unit's label of the gauge and disable the user-defined multiplier.

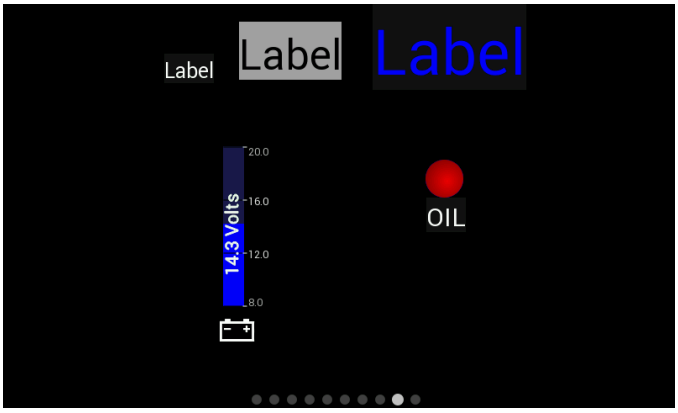
If any gauges appear to read incorrectly, be sure to verify that this multiplier value has not been inadvertently changed.



Adding Labels

Labels can be added anywhere on the gauge screen. The customization options for Labels include Font Size, Foreground & Background colors, and Transparency. See below for an example of the variety of sizes, colors and symbols that can be used.



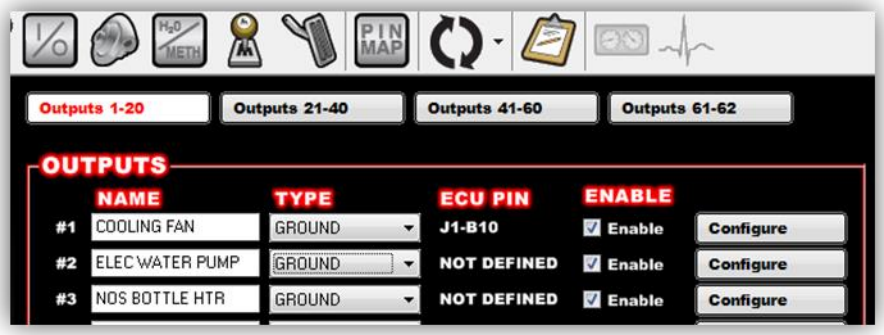


Adding Switches

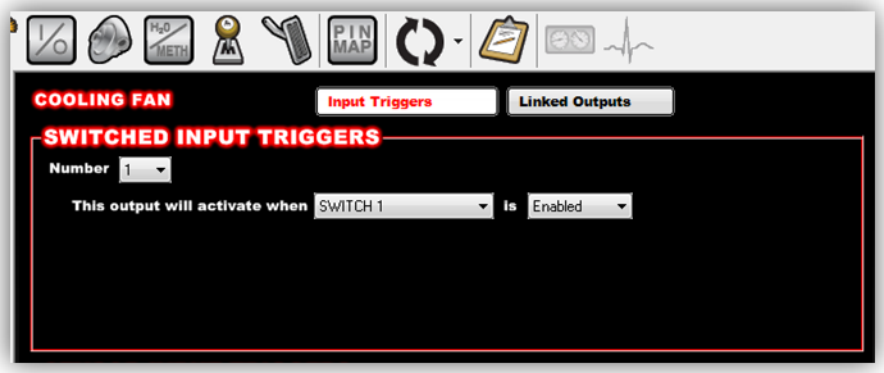
Switches can be placed anywhere on the gauge screen, they can be used to turn devices on or off, as a nitrous enable, etc. These functions are mapped through the Holley EFI software. Follow these steps for proper configuration:

1. Create an input in the I/O screen and give it a name – for this example we have named it “SWITCH 1”

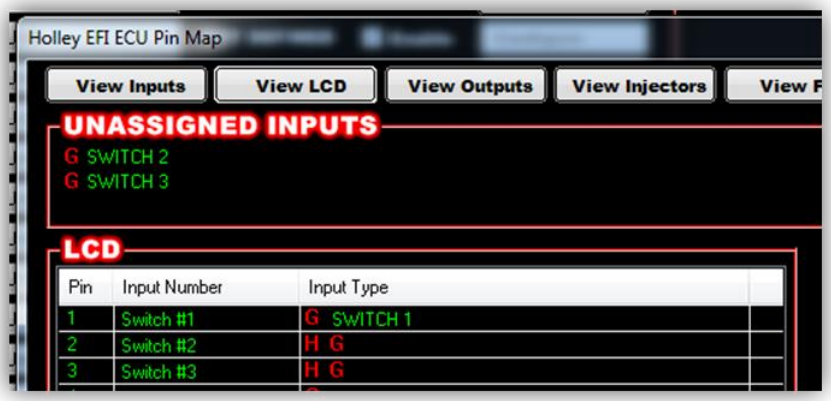
2. Create an output in the I/O screen and give it a name – in this example we have named them “Cooling Fan”, “Elec Water Pump”, and “NOS Bottle Htr”. Once named, choose ‘Configure’ at the right of the screen.



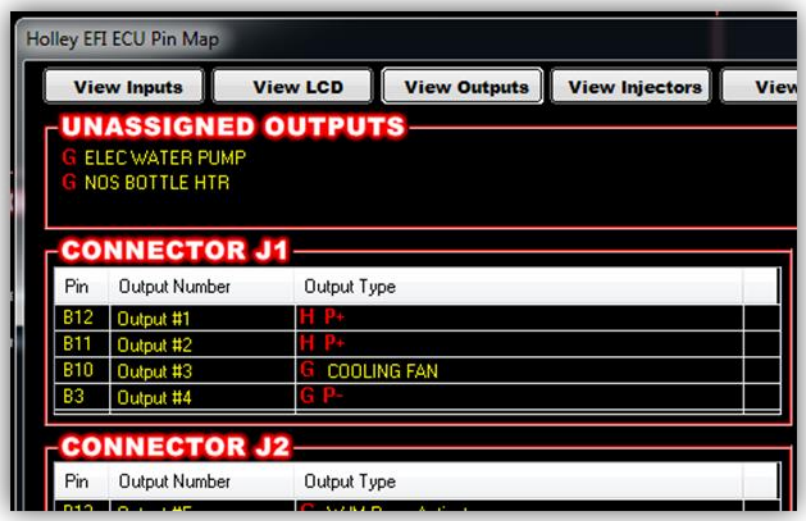
3. Set the Switched Input Trigger to activate when ‘SWITCH 1’ is enabled



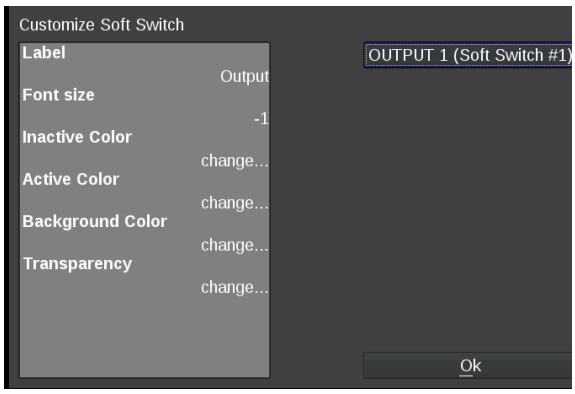
4. Go to the ‘PIN Map’ Icon, select ‘View LCD’ and drag the switch inputs to the appropriate pin number.

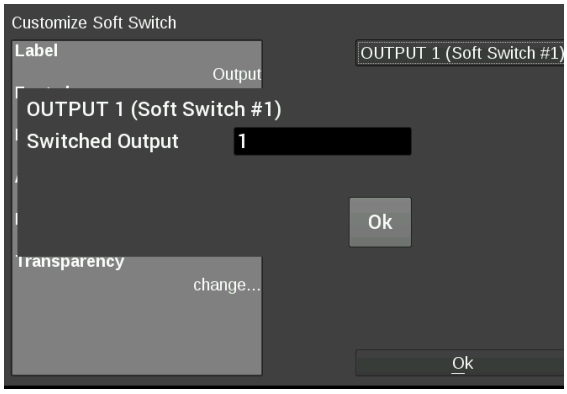


5. Select ‘View Outputs’ from the ‘Pin Map’ and drag the outputs to the whatever pin location the device was wired to.



6. You will have to send the new configuration to the EFI and toggle the ignition for approximately 5 seconds for the changes to be saved. Turn on the ignition to continue.
7. Place a switch on the Holley EFI Digital Dash gauge screen by choosing ‘Add’ then ‘Switch’. An option box in the upper right hand corner of the switch customize menu will allow mapping of the switch to the proper LCD Pin Map number that was configured in the Holley EFI software.
8. Customize the switch Label and other properties on the Dash and choose ‘Ok’.

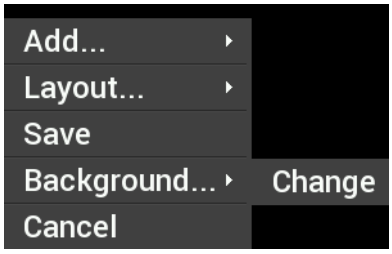


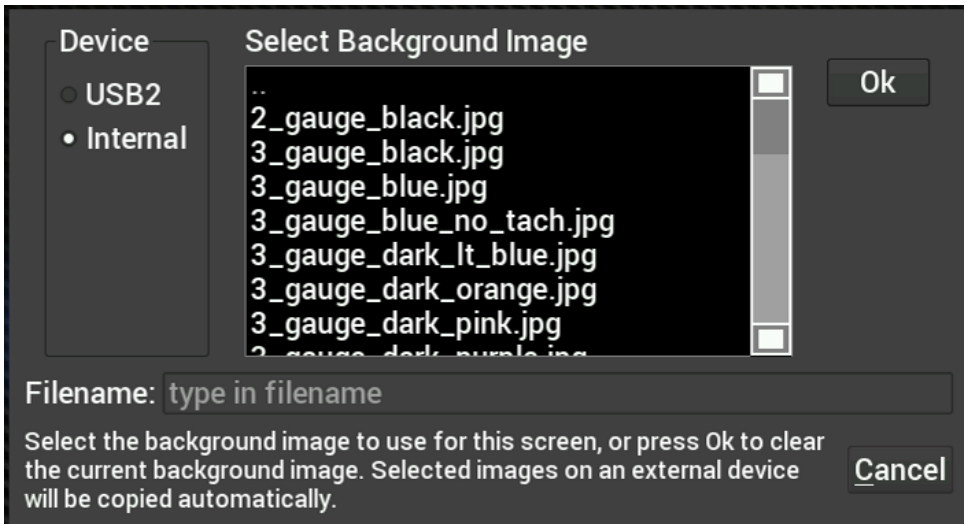


Changing the Background

The Holley EFI Digital Dash comes preloaded with a variety of background images and gauge templates (see Appendix C). Users can also upload their own background image from a USB memory stick. Background images should be 800x480 resolution, in .jpg or .png file format.

To change the background, enter the customize menu and choose ‘Background’. A file directory will open listing all available background images. To choose one from a USB drive, select ‘USB’ on the left side of the screen and that drive’s files will then be shown. Choose a background filename, and press OK to replace the current background. The background image is copied to the internal memory of the Dash so the USB does not have to be present for that background to be used.





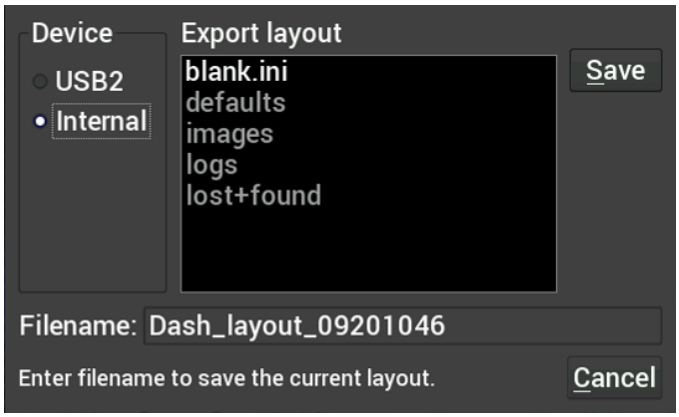
To remove the background from the current layout, press Ok without selecting a filename.

Saving Your Layout

Once a layout has been created it must be saved. Touch any blank portion of the gauge screen and select Save.

Exporting / Importing Layouts

You can save a copy of your layout in Customize mode by touching on any blank portion of the gauge screen and select Layout > Export. At this point, the layout can be given a name and saved internally to the Dash or to an external USB drive (if present). Click on the filename field to bring up a keyboard to personalize the filename. Once you have successfully saved the layout, touch any blank portion of the gauge screen and choose 'Save' or you may choose 'Save' from the top right hand corner of the gauge screen to return to the dashboard screen.



Importing Layouts

You may import a layout from the defaults directory or USB drive by selecting Layout->Import. Navigate to the screen you want to import and select Import. Touch any blank portion of the gauge screen and choose 'Save' to return to the dashboard screen.

Start-up Gauge Layout

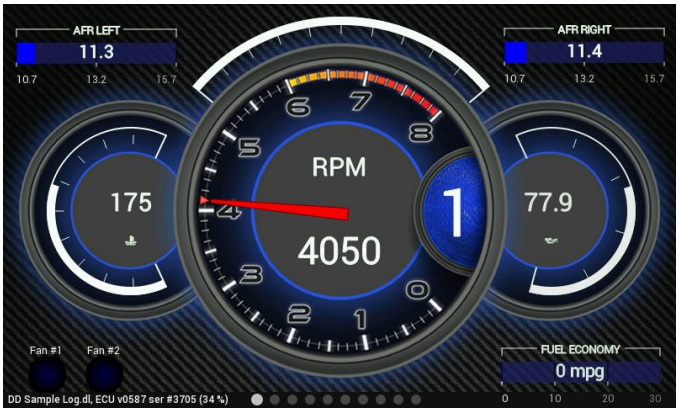
The Dash will use the last saved layout as the start-up layout. To configure the screen that will be shown upon start-up of the Dash, follow these steps:

1. Toggle to the screen you would like displayed each time the unit is powered on.
2. Enter ‘Customize’ from the Main Menu.
3. Choose ‘Save’ in the top right corner of the gauge screen.

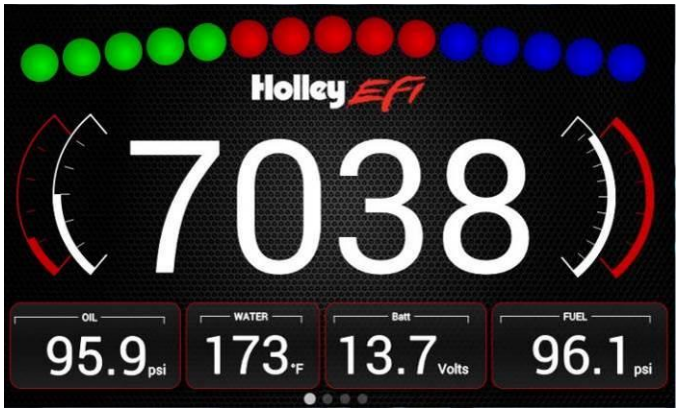
Preconfigured Layouts

The Holley EFI Digital Dash comes standard with ten preconfigured gauge layouts. The first four of these layouts are active by default. If a smaller or larger number of layouts are desired, select ‘Configuration’ from the Main Menu. The minimum number of layouts is two and the maximum is ten.

Below are examples of the ten preconfigured layouts:



Layout 1



Layout 2

Layout 3

Layout 4

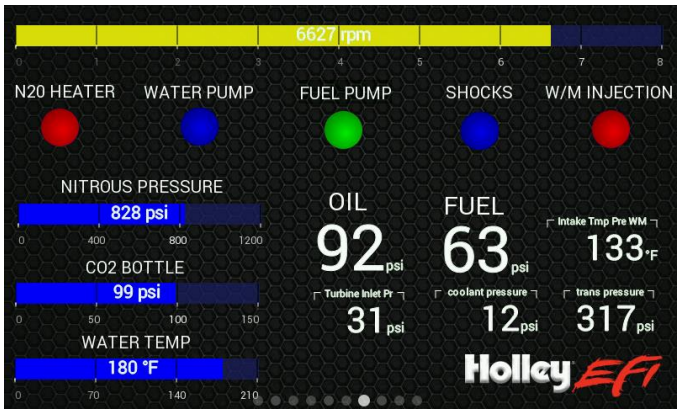
Layout 5

Layout 6

Layout 7

Layout 8

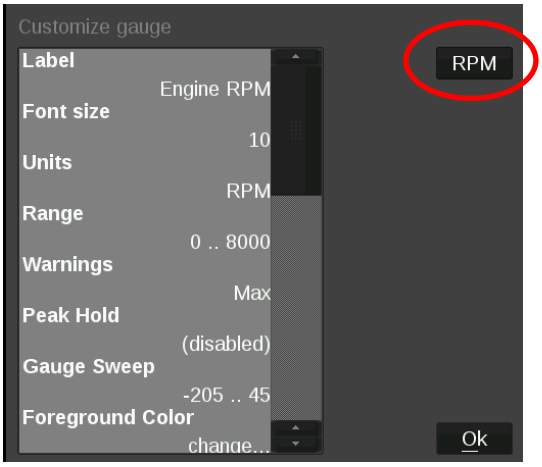
Layout 9



Layout 10

Modifying Channels on a Preconfigured Layout

Any gauge channel can be changed to meet user needs. To do this, touch the gauge to modify and press 'Customize'. At the top right corner of the customize gauge menu is a button that will allow the user to redefine the channel being displayed. For instance, fuel pressure on Layout 10 could be changed to display Boost.



NOTE: Only the gauge value being display will be updated, the user MUST manually change Labels, Units, Range, Warnings etc. with proper values as these will NOT be updated automatically! Refer to the 'Customizing Your Layout' Section of this manual for instructions on gauge customization.

Data Log Record and Playback

Local Data Record

The Holley EFI Digital Dash has a record button that will record data logs directly to a USB flash drive or internal storage. The record button can be shown by pressing anywhere on the dashboard display.

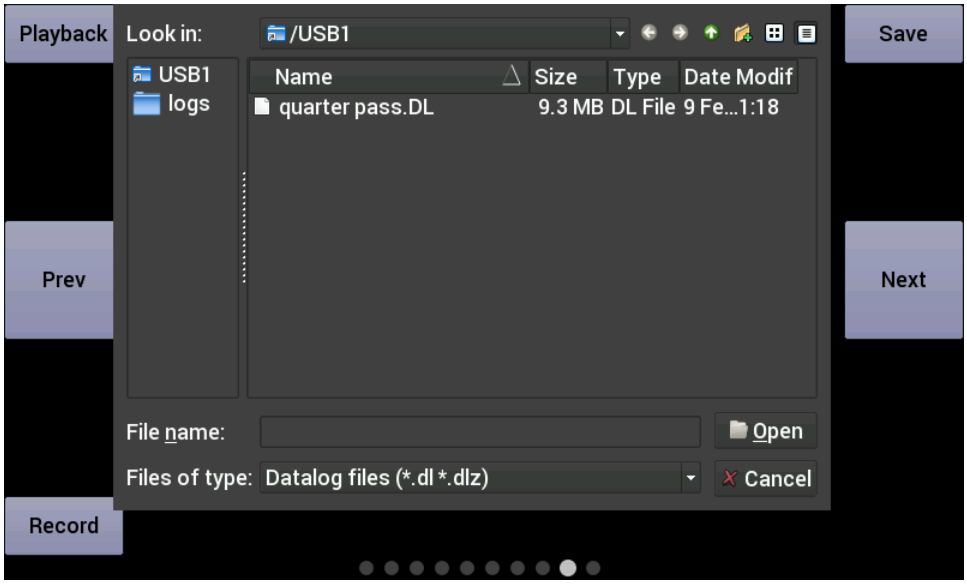
Pressing this button will record accelerometer data, local dash inputs, ECU broadcast data and the data from the optional GPS directly to a USB flash drive or internal storage.

The data is recorded in the standard Holley Log File format and can be examined using PC software.

Data Log Playback

The Holley EFI Digital Dash will play back logs that have been locally recorded using the 'Record' button or retrieved from a Holley EFI ECU. Pressing on the 'Playback' button in the upper left corner of the dashboard screen allows you to play back these logs from the Dash's internal storage or a USB drive.

The data log playback will animate the gauges with data that has been previously recorded. To return to the live data display, a 'Stop' button can be used from on the on-screen menu to stop the playback at any time.

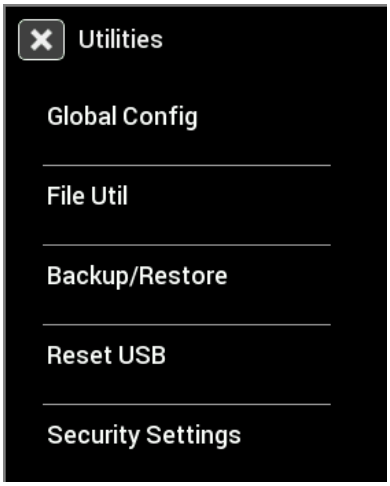


USB Flash Drive Removal

If a USB Flash drive is plugged into one of the USB ports on the Digital Dash, an eject button will appear in the lower right corner of the dashboard on-screen menu. This ensures that all files are closed on the USB drive allowing a safe removal.

Utilities Menu

From the utilities menu, you can upload/download global EFI configurations, access file utilities, backup/restore the dash configuration, and adjust security settings. Press on the 'X' at the top left corner to return to the main menu.

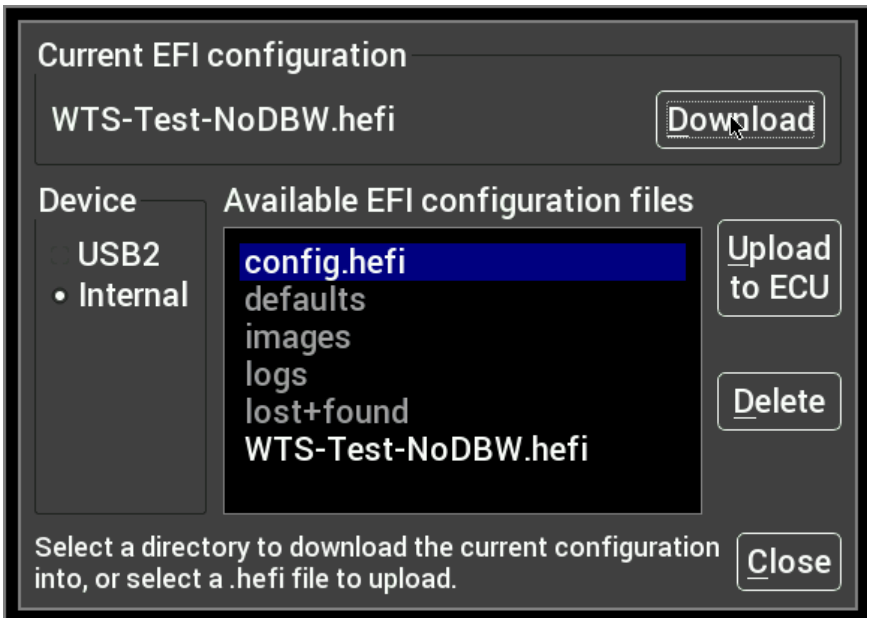


Global Config

A global configuration contains the complete configuration of a Holley EFI in a single .hefi file. The Dash can upload and download global configs to the connect EFI.

Downloading the Current EFI Configuration

Connect a USB flash drive to one of the USB cables attached to the Dash. Navigate to the desired device and folder where you want to store the current EFI configuration, and press Download to start the transfer.



Uploading a New EFI Configuration

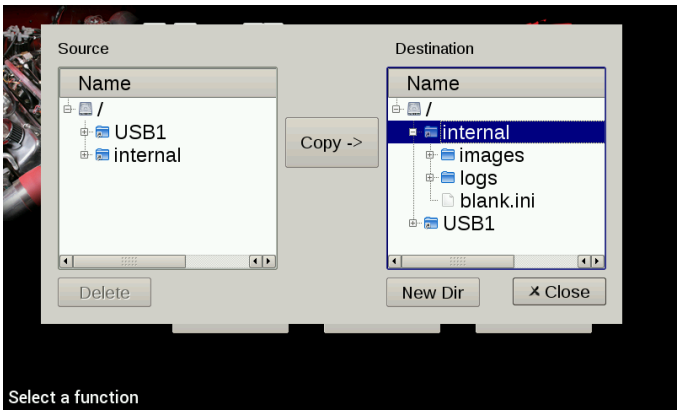
To upload a new configuration to your Holley EFI, first ensure that the engine is not running. Navigate and select the desired .hefi configuration file and press Upload to ECU to start the transfer.

Deleting EFI configuration files

If you no longer want to have a copy of the .hefi file you may remove it. Navigate to the desired file and press Delete.

File Utilities

The utilities screen allows users to perform file functions such as deleting files and copying files to USB memory sticks.

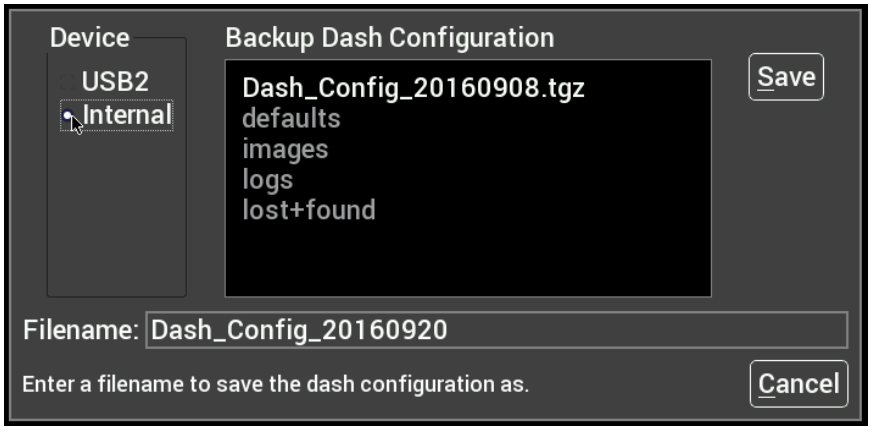


Backup/Restore

Backup/Restore can be used to duplicate a dash configuration on a new dash. The backup includes all local dash configuration settings and screen layouts.

Backup

To create a backup copy of the complete Dash configuration, choose Backup Configuration.



Navigate to where you want the backup file stored, adjust the filename if necessary and press Save.

Restore

To restore a previously saved configuration, select the Restore Configuration from the menu, locate the desired Dash_Config_*.tgz file and press Restore.

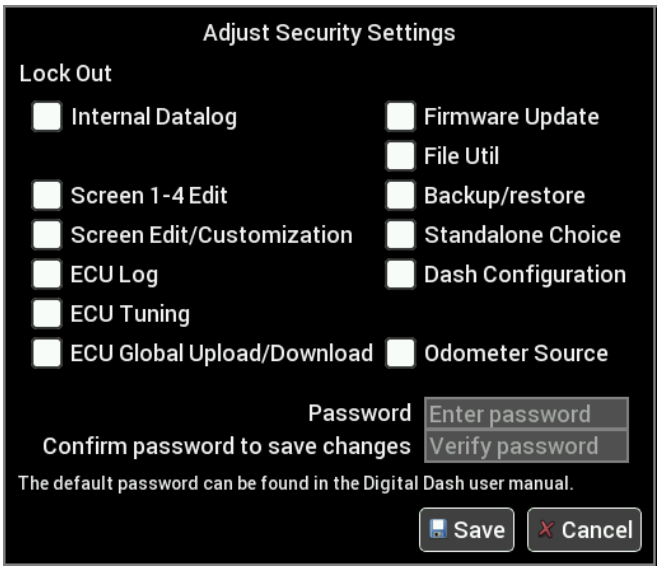
Factory default configurations can be restored from /internal/defaults/Dash_Config_V4.tgz for EFI connected units, or /internal/defaults/Dash_Config_SA.tgz for standalone operation.

Security Settings

The Dash has the ability to lock out certain functionality. To disable a particular feature, place a checkmark beside the feature you wish to lock out.

Default Password

Before you can change any settings, you will need to enter the default password of “holley” (without quotes.)



Item	Effect when checked (locked out)
Internal Datalog	Does not allow the user to record or play back a locally recorded logfile.
Screen 1-4 Edit	Does not allow the user to change the first four layout screen on the dashboard. Screens 5-10 are still editable.
Screen Edit/Customization	No screens can be edited or customized.
ECU Log	The user cannot download log files from the ECU.
ECU Tuning	The ECU Tuning menu is disabled
ECU Global Upload/Download	Global .hefi files cannot be uploaded or download to/from the ECU.
Firmware Update	The firmware cannot be updated on the unit.
File Util	File utilities menu is disabled
Backup/Restore	Dash backup and restore functionality is disabled
Standalone Choice	The user cannot switch between standalone and EFI-connected mode.
Dash Configuration	The user cannot change the local dash channel configuration, can device configuration, vehicle settings, or touchscreen calibration.
Odometer Source	The odometer source cannot be changed.

Once you have changed the options, click on the password box and enter a password to protect the option selections. The password is not echoed on the screen. You must confirm the password before you are allowed to save the selections.

If the options are greyed out, you will need to enter the password before you can change the options.

EFI Tuning

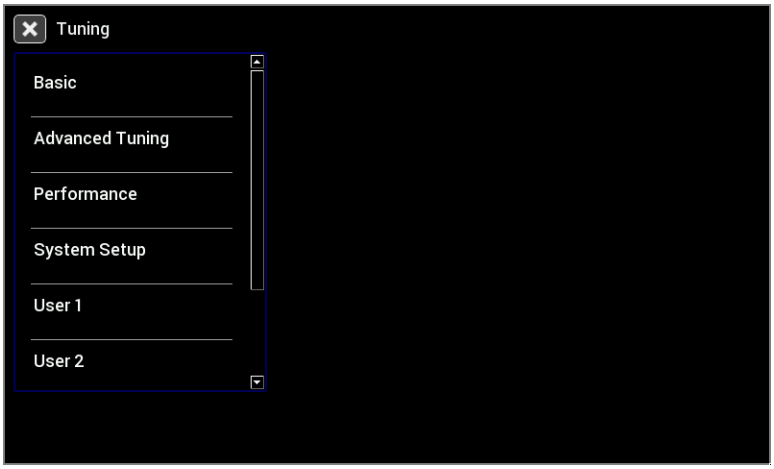
The Digital Dash has been equipped to tune most of the EFI parameters. It is expected that the user is familiar with the PC tuning software and general EFI tuning principles.

From the main menu, choose the Tuning menu to adjust most of the parameters in your Holley EFI.

Menu Organization

The left side contains the list of menus and items that can be used to change parameters on the EFI.

Menu	Parameters
Basic	Basic tuning parameters including fuel, closed loop/learning speed, spark, transmission shifts.
Advanced Tuning	Detailed fueling, idle, spark and individual cylinder tuning.
Performance	Performance items such as Launch, Rev Limiters, Nitrous, Boost, Traction Control, Water/Methanol, and Advanced Tables.
System Setup	Initial EFI configuration and other system options including Fans, Fuel Pump, A/C Shutdown, Engine Setup, Diagnostics selection, Ignition, Transmission. TPS autoset and Static Timing are also available from the System Setup Menu.
User 1 – User 4	Four user-customizable menus



Using the Tuning Menu

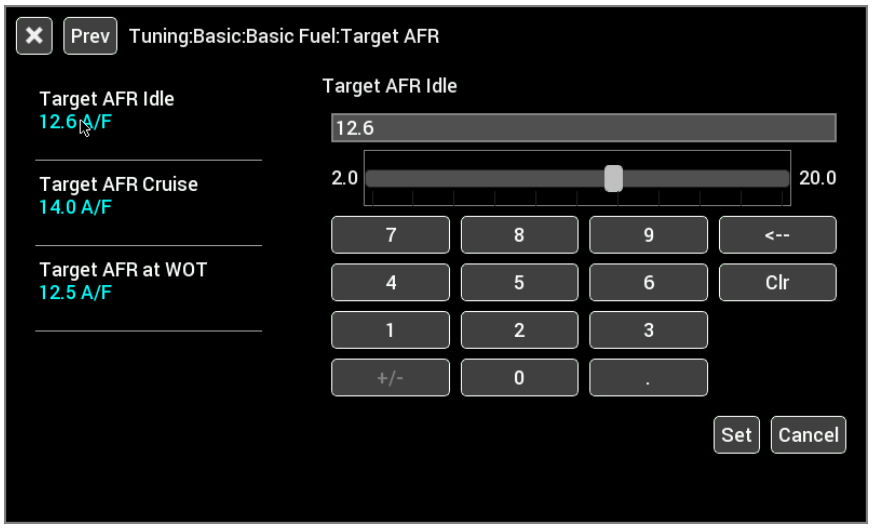
There are a number of different editors based on the value you choose to edit. The current value is displayed in light blue beneath the parameter label.

Enable/Disable Toggle

Pressing on a toggle type menu item will toggle the state between disabled and enabled. Note that some additional parameters may appear in the menu list once enabled. For example, the Fan 1 on and off settings are not shown if Fan 1 is disabled.

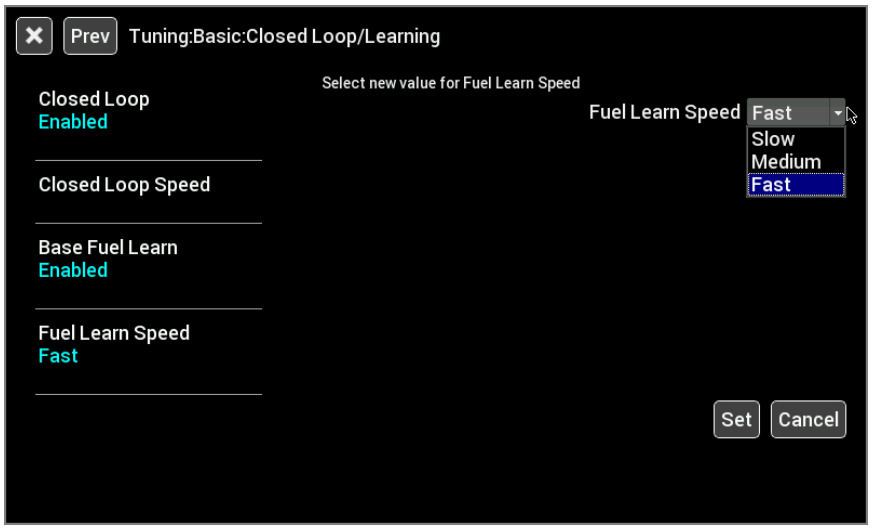
Numeric Editor

Selecting a parameter with a numeric value will bring up a numeric keypad and slider bar on the right half of the screen. You may use either the slider or keypad to change the value. The parameter limits are shown near the slider bar.



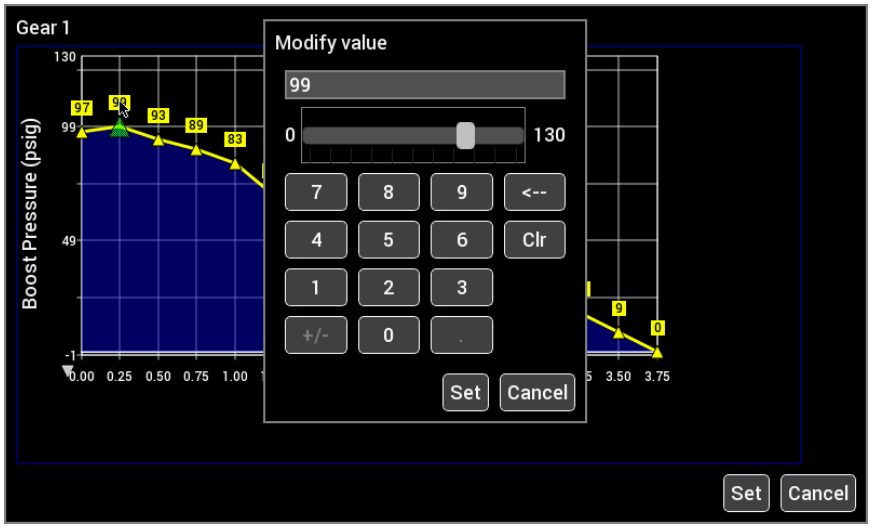
Pull-Down/List

Parameters that have specific choices are displayed in a pull-down list. The current setting is displayed in blue, and pressing on the parameter brings up a pull-down list on the right side.



Graph Editor

Parameters that are graphical will bring up the graph editor. Graphs can be edited by selecting a point and dragging it up and down, or by clicking on the yellow value box near the point you wish to edit.



Multi-series graphs have a selection on the right hand side to select the series you are editing. The series that can be edited is shown in yellow. In the example below, 3-4 Upshift is selected.

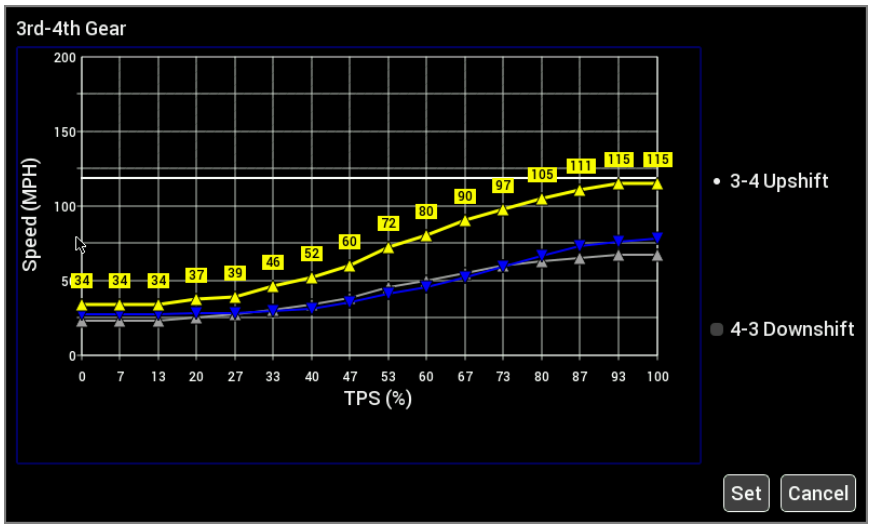
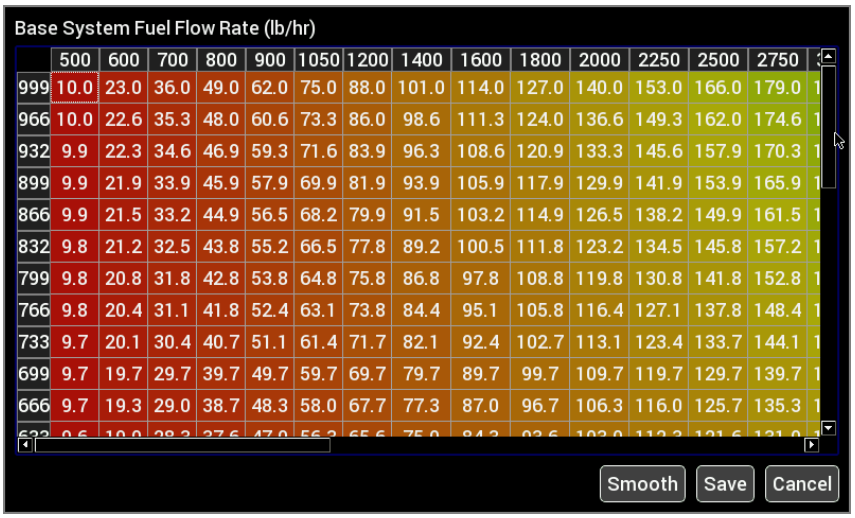


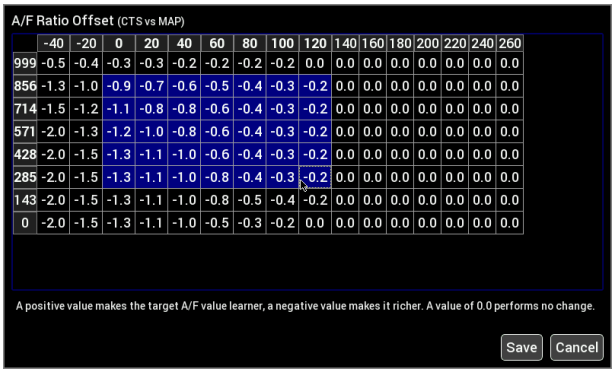
Table Editor

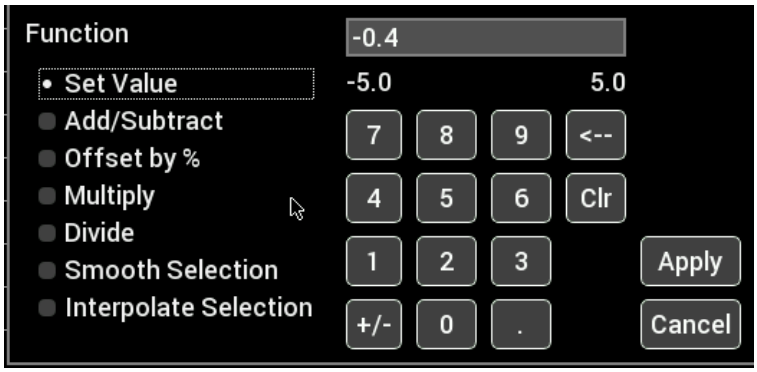
In table editor you can select a single cell or multiple cells to edit. Press once on a single cell to select it, then press a second time to bring up the numeric table editor.

Multiple cells may be edited by first pressing and dragging to highlight the desired cell range in blue. Press on any blue selected cell to bring up the numeric table editor.



To perform smooth and interpolate operations, first select a range of cells then press on any selected cell to bring up the editor. Select Smooth or Interpolate then press Ok.





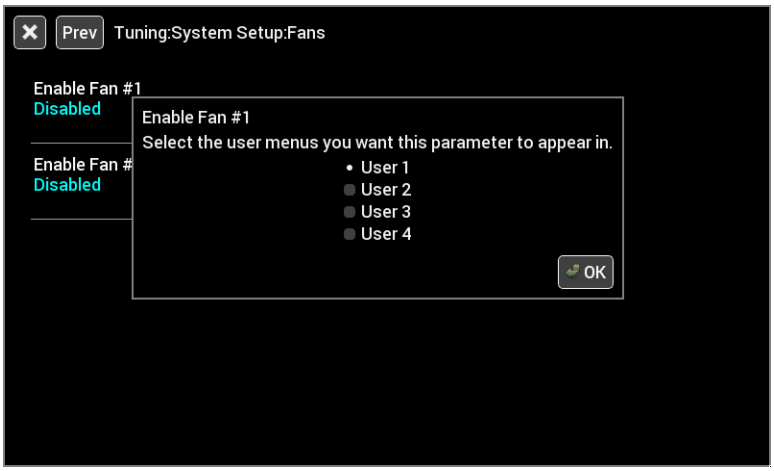
To perform an action, select the desired function, type in a value and press Apply. Changes are not sent to the EFI until the 'Save' button is pressed.

Function	Description
Set Value	Sets all selected cells to the same value
Add/Subtract	Adds an offset to the selected cells.
Offset by %	Offsets each selected cell by a percentage. 100% doubles the value.
Multiply	Multiples each selected cell by a value
Divide	Divides each selected cell by a value
Smooth Selection	Smooths the selection using neighboring cell values
Interpolate Selection	Perform a linear interpolation of values using the four corner cells in the selection

User Customizable Menus

You can change the title of the user customizable menu by pressing on the menu label for more than 2 seconds. A keyboard will appear allowing you to change the name of the menu.

To add items to a user menu, you must first navigate to the desired item. Press on the desired menu item label for more than 2 seconds and a dialog box will appear allowing you to select which menu to add or remove this item to.



Cleaning

If screen needs cleaning, use the supplied microfiber cleaning cloth. Do not use harsh chemical cleaners on the touch screen display.

Do not subject the display to a high pressure water stream from a pressure washer.

Appendix A

List of EFI Monitored Values

Below is a list of 283 values that can be monitored. Any user programmed I/O values will appear in the list in addition to these once the Dash has been connected to a Holley ECU.

RTC	INJ PW1	N2O STAGE 6	DIAG #10
RPM	INJ PW2	N2O STAGE 7	DIAG #11
INJ PW	INJ PW3	N2O STAGE 8	DIAG #12
DUTY CYCLE	INJ PW4	GPO 1	DIAG #13
CL COMP	INJ PW5	GPO 2	DIAG #14
TARGET AFR	INJ PW6	GPO 3	DIAG #15
AFR LEFT	INJ PW7	GPO 4	DIAG #16
AFR RIGHT	INJ PW8	GPO 5	DIAG #17
AFR AVERAGE	INJ PW9	GPO 6	DIAG #18
AIR TEMP ENR	INJ PW10	GPO 7	DIAG #19
COOLANT ENR	INJ PW11	GPO 8	DIAG #20
COOLANT AFR OFFSET	INJ PW12	N2O ENABLED	ADV LAUNCH INPUT
AFTERSTART ENR	CYL FUEL CORR1	N2O INPUT #1	ADV SHIFT INPUT
CURRENT LEARN	CYL FUEL CORR2	N2O INPUT #2	ADV GEAR
CL STATUS	CYL FUEL CORR3	N2O INPUT #3	ADV AT 1D1
LEARN STATUS	CYL FUEL CORR4	N2O INPUT #4	ADV AT 1D2
FUEL ECONOMY	CYL FUEL CORR5	N2O INPUT #5	ADV AT 1D3
FUEL FLOW	CYL FUEL CORR6	N2O INPUT #6	ADV AT 1D4
MAP RoC	CYL FUEL CORR7	N2O INPUT #7	ADV AT 1D5
TPS RoC	CYL FUEL CORR8	N2O INPUT #8	ADV AT 1D6
TUNING CHANGE	CYL FUEL CORR9	N2O PURGE	ADV AT 1D7
ESTIMATED VE	CYL FUEL CORR10	N2O LEAN CUTOFF	ADV AT 1D8
IGNITION TIMING	CYL FUEL CORR11	N2O RICH CUTOFF	ADV AT 2D1
KNOCK RETARD	CYL FUEL CORR12	N2O RPM CUTOFF	ADV AT 2D2
KNOCK LEVEL	CYL FUEL CORR13	N2O MAP CUTOFF	ADV AT 2D3
IAC POSITION	CYL FUEL CORR14	N2O PURGE OUTPUT	ADV AT 2D4
MAP	CYL FUEL CORR15	N2O DRY FUEL 1	ADV AT 2D5
TPS	CYL FUEL CORR16	N2O DRY FUEL 2	ADV AT 2D6
MAT	CYL TIMING CORR1	N2O DRY FUEL 3	ADV AT 2D7
CTS	CYL TIMING CORR2	N2O DRY FUEL 4	ADV AT 2D8
BARO	CYL TIMING CORR3	N2O DRY FUEL 5	ADV AT 1D/GEAR 1
BATTERY	CYL TIMING CORR4	N2O DRY FUEL 6	ADV AT 1D/GEAR 2
OIL PRESSURE	CYL TIMING CORR5	N2O DRY FUEL 7	ADV AT 1D/GEAR 3
FUEL PRESSURE	CYL TIMING CORR6	N2O DRY FUEL 8	ADV AT 1D/GEAR 4
PEDAL POSITION	CYL TIMING CORR7	N2O TIMING MOD1	ADV AT 1D/GEAR 5
MAIN REV LIMIT	CYL TIMING CORR8	N2O TIMING MOD2	ADV AT 1D/GEAR 6
REV LIMIT #1	CYL TIMING CORR9	N2O TIMING MOD3	ADV AT 1D/GEAR 7
REV LIMIT #2	CYL TIMING CORR10	N2O TIMING MOD4	ADV AT 1D/GEAR 8
AC KICK	CYL TIMING CORR11	N2O TIMING MOD5	ADV AT 2D/GEAR 1
TIMING RETARD #1	CYL TIMING CORR12	N2O TIMING MOD6	ADV AT 2D/GEAR 2

TIMING RETARD #2
TIMING RETARD #3
FAN #1
FAN #2
#2 FUEL PUMP
AC SHUTDOWN
TCC LOCKUP
SENSOR WARNING
SENSOR CAUTION
BASE FUEL LB
BASE FUEL VE
BASE TIMING
BASE TAFR
BASE IGN DWELL
VOL COMP IGN DWELL
INJ END ANGLE
ECU LOG TRIGGER
TIMING AIR TEMP
TIMING COOLANT TEMP
STATUS1
STATUS2
STATUS3
STATUS4
STATUS5
STATUS6
STATUS7
STATUS8
INJ PPH1
INJ PPH2
INJ PPH3
INJ PPH4
INJ PPH5
INJ PPH6
INJ PPH7
INJ PPH8
INJ PPH9
INJ PPH10
INJ PPH11
INJ PPH12

CYL TIMING CORR13
CYL TIMING CORR14
CYL TIMING CORR15
CYL TIMING CORR16
TGT FUEL PRESSURE
BOOST PSIG
BOOST GEAR
BOOST STAGE
BOOST
BOOST SPEED
BOOST TIME
TARGET BOOST
TRANS BRAKE
BOOST SCRAMBLE +
BOOST SCRAMBLE -
MANUAL BOOST BUILD
MANUAL BOOST RESET
BOOST BUILD
BOOST SOLENOID DUTY
BOOST SAFETY
BOOST MASTER ENABLE
BOOST MANUAL SHIFT IN
BOOST MANUAL STAGE IN
BOOST FILL SOL DC
BOOST VENT SOL DC
W/M INJECTION
W/M MANUAL ENABLE
W/M LOW FLUID
W/M PUMP STATUS
W/M SOL FLOW1
W/M SOL FLOW2
W/M TOTAL FLOW
W/M SOL DC1
W/M SOL DC2
N2O STAGE 1
N2O STAGE 2
N2O STAGE 3
N2O STAGE 4
N2O STAGE 5

N2O TIMING MOD7
N2O MTIMING MOD8
N2O TIMER1
N2O TIMER2
N2O TIMER3
N2O TIMER4
N2O TIMER5
N2O TIMER6
N2O TIMER7
N2O TIMER8
TRANS GEAR
TRANS SPEED
LINE PRESSURE
INPUT SHAFT SPEED
ACCUM PRESSURE
TCC DUTY CYCLE
LINE TEMP
TORQUE TIME
TRANS MAN UPSHIFT
TRANS MAN DNSHIFT
TRANS AUTO/MAN
TB TPS #1
TB TPS #2
PEDAL TPS #1
PEDAL TPS #2
TB2 TPS #1
TB2 TPS #2
TB POSITION
TB2 POSITION
BRAKE PEDAL
DIAG #1
DIAG #2
DIAG #3
DIAG #4
DIAG #5
DIAG #6
DIAG #7
DIAG #8
DIAG #9

ADV AT 2D/GEAR 3
ADV AT 2D/GEAR 4
ADV AT 2D/GEAR 5
ADV AT 2D/GEAR 6
ADV AT 2D/GEAR 7
ADV AT 2D/GEAR 8
ACC X
ACC Y
ACC Z
GPS QUAL
GPS SPEED
GPS LAT
GPS LONG
GPS ELV
GPS DIR
DASH IO1
DASH IO2
DASH IO3
DASH IO4
DASH IO5
DASH IO6
DASH IO7
DASH IO8
DASH IO9
DASH IO10
DASH CAN1
DASH CAN2
DASH CAN3
DASH CAN4
DASH CAN5
DASH CAN6
DASH CAN7
DASH CAN8
DASH CAN9
DASH CAN10
DASH ODOMETER

Appendix B

Increasing Internal Logging Storage (micro-SD card)

To increase the storage space for internal logging, you may purchase a micro-SD card and install it inside the unit. Please turn off power to the unit before opening the access panel.

Using a Philips screwdriver, carefully remove the rear access panel. Remember to ensure the rubber strip is replaced before closing the unit, to keep liquid out of the unit.

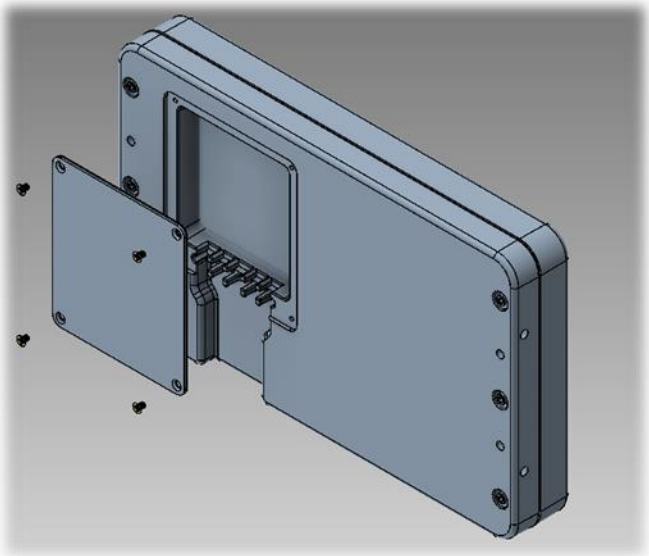


Figure 1. Slide door to the left to unlock

Figure 2. Flip up door

Figure 3. Insert micro-SD card

Figure 4. Flip door down

Figure 5. Slide door to the right to lock

Optional I/O Connector

The internal I/O connector can be used for stand-alone applications or as additional inputs and outputs. An optional I/O adapter is available as part number 558-432, 558-433 or 558-434.

	IO1	IO2	IO3	IO4	IO5	IO6	IO7	IO8	IO9	IO10
SSR GND switched output (2A)	Y	Y								
5V Input	Y	Y			Y	Y	Y			
Switch to GND input	Y	Y	Y	Y	Y	Y	Y			
Switch to +12V input	Y	Y	Y	Y	Y	Y	Y			
RPM Input			Y	Y						
Speed Input			Y	Y						
Frequency Input			Y	Y						
Oil Pressure (5V)							Y			
Resistive Sensor to GND								Y	Y	Y
CTS / MAT Sensor to GND								Y	Y	Y
Fuel sender input										Y

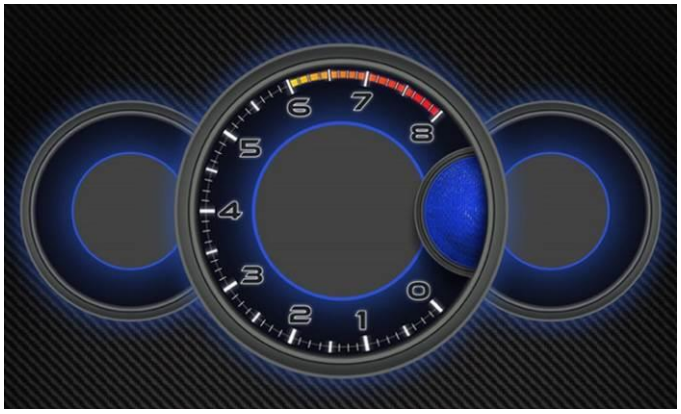
I/O Connector Supported Functions

Pin	Function	Sample use
1	5V EXC	5V excitation output for sensors (70mA max)
2	IO1	Left turn input or General I/O
3	IO2	Right turn input or General I/O
4	IO3	Digital Engine RPM input or General I/O
5	IO4	Digital Speed Input or General I/O
6	IO5	High beam input
7	IO6	Brake input
8	IO7	Oil pressure input
9	IO8	Oil temperature sender input, built-in pullup
10	IO9	Coolant temperature sender input, built-in pullup
11	IO10	Fuel sender input, built-in pullup
12	GND	Ground reference

I/O Connector Pinout

Appendix C

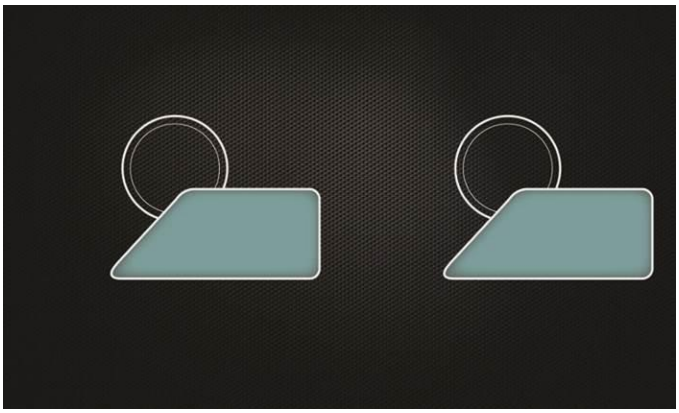
The following preloaded background images can be found in /internal/images.



LAYOUT1

LAYOUT2

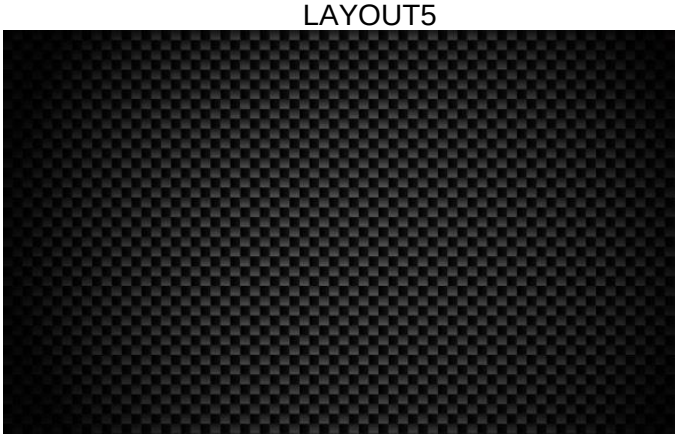
LAYOUT3



LAYOUT4

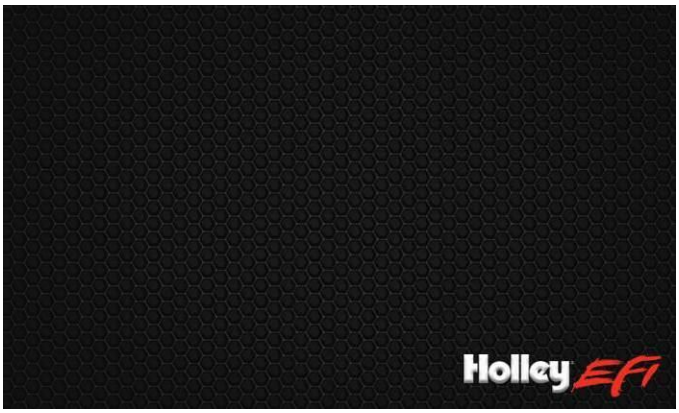
LAYOUT5

LAYOUT6



LAYOUT7

LAYOUT8



LAYOUT9

LAYOUT10

Holley_EFI_1

Holley_EFI_2

BlackStone

Fire2

3_gauge_dark_lt_blue

3_gauge_dark_orange

3_gauge_dark_pink

3_gauge_dark_purple

3_gauge_dark_red

3_gauge_dark_teal

3_gauge_dark_yellow

3_gauge_dark_green

3_gauge_blue

3_gauge_red

3_gauge_lt_blue

3_gauge_lt_green

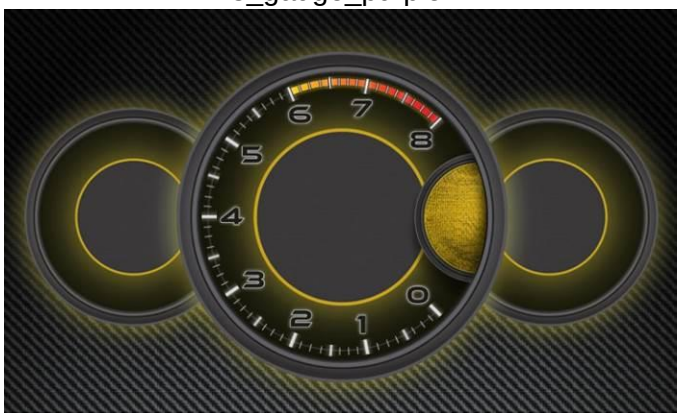
3_gauge_green

3_gauge_orange

3_gauge_pink

3_gauge_purple

3_gauge_teal



3_gauge_yellow

2_gauge_black

3_gauge_black

1999R10746
Revision Date: 7-20-17