1994-95 Ford Mustang
Holley EFI Kit
General Guide & Instructions

WARNING! Not CARB certified or EO compliant, for Off-Road use ONLY

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Introduction

Thank you for purchasing the 1994-95 Ford Mustang MFAdapter kit. This product was designed to help reduce installation labor time and use the basic functions of the Holley EFI system on vehicles utilizing SN95 Mustang (1994-95) wiring for the pushrod V8 engine.

What's in the kit:

MFAdapter

Main Harness

Sub Harness

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Main Harness Overview

The Main Harness features up to six connection points and includes a built-in CAN splitter. This splitter provides one CAN connection located beneath the passenger seat and a second accessible under the dashboard, making it easy to connect digital dashes or other accessories.

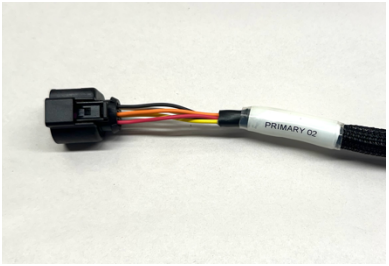
Sub Harness Overview

The Sub Harness is designed to simplify installation by providing dedicated connections for critical engine management sensors and components. It includes connectors for Ignition (supporting systems like Holley Dual Sync or cam/crank setups), Wideband O2 (required for Closed Loop and Learn modes), Flex Fuel Sensor (for ethanol content detection and fuel adjustment), Fuel Pressure Sensor (for real-time fuel system monitoring), Oil Pressure Sensor (to track engine health), and a MAP Sensor (used by the ECU to determine engine load). For boosted applications, the harness supports an external MAP sensor for accurate pressure readings under forced induction.

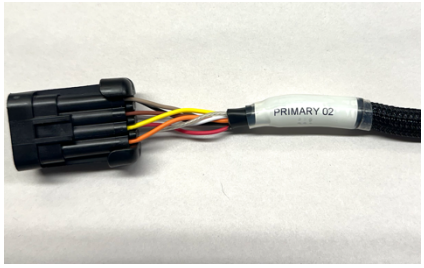
Primary O2 / Wideband

Required: It allows the ECU to monitor the current air-fuel ratio and is essential for proper operation of Closed Loop and Learn functions.

Primary O2 (Terminator X / X Max)



Primary O2 (HP / Dominator)



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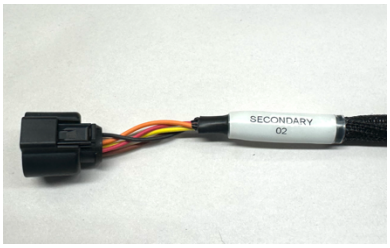
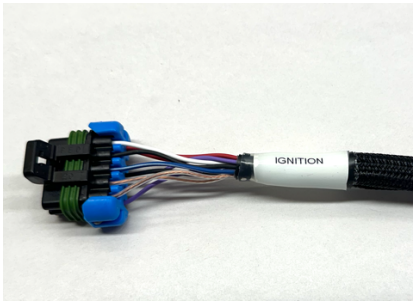
Secondary O2 / Wideband

Optional: It allows the ECU to monitor the current air-fuel ratio in the opposite bank from the Primary O2 sensor. This will be for monitoring only and not used by the ECU to control proper operation of Closed Loop and Learn functions. This will be available only on the Terminator X / X Max platforms. *This connection will not be found on all harnesses*.



Ignition

Optional: Provides compatibility with aftermarket ignition systems used with Holley EFI. It supports setups such as Holley's Dual Sync distributor or a dedicated cam and crank sensor configuration.



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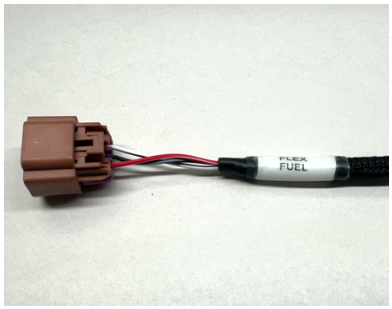
Flex Fuel

Optional: Enables the ECU to detect ethanol content and adjust fuel and timing automatically for varying fuel blends.

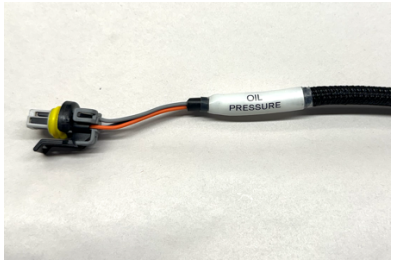


Fuel Pressure

Optional: Monitors fuel pressure and provides critical data to the ECU for diagnostics and safety.

Oil Pressure

Optional: Monitors oil pressure and provides critical data to the ECU for diagnostics and safety.



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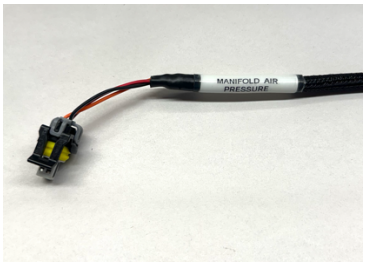
Manifold Air Pressure

Required: Measures manifold absolute pressure, allowing the ECU to calculate engine load for accurate fuel and ignition control. *An external MAP sensor is required for forced induction applications.*



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Installation Overview

These installations steps are a generic overview of what it will take to install the MFAdapter in your vehicle. Your steps may be different depending on your platform.

Steps

1- Disconnect the battery.
2- Elevate the vehicle with a lift or jack & jack stands.
3- Remove passenger side wheel and splash shield.
4- Remove passenger side seat from the vehicle.
5- Remove passenger side door sill plate.
6- Remove passenger side kick panel.
7- Disconnect any body harness connectors to make room to remove the EEC.
8- Disconnect factory EEC connector inside kick panel and remove factory EEC.
9- Install provided main harness into the MFKustoms adapter.
    a. Run the main harness under the factory carpet to under the passenger seat area.
    b. Push harness connectors through the slit in the carpet to allow connectors to rest inside the interior of the car (may need to increase the slit in the carpet with a razor blade).
10- Go to the passenger side fender well and locate the firewall grommet.
    a. Pull the grommet away from the firewall so you can cut a hole to allow the new sub-harness to pass through.
    b. Be CAREFUL NOT to cut any of the factory wires when doing this. We find the easiest way is to pull the grommet away and cut a slit in the bottom of the grommet to allow the new sub-harness to pass through the firewall more easily. Once you push the grommet back in place, the seal will be tight around the wiring again.
11- Run the new sub-harness through the firewall grommet and connect to the MFAdapter. In the engine bay you can route the sub-harness in accordance to where your sensors are mounted.
12- Run the ECU power harness from the ECU to your battery.
    a. If your battery is in the factory location, push the power harness power and ground wires through the firewall grommet.
    b. If your battery is in the trunk go ahead and run your wires towards the battery.
    c. Leave the power harness connector unplugged from the Holley ECU until the end of the installation.
13- For naturally aspirated or nitrous vehicles you can use the on-board 1 bar MAP sensor and connect a vacuum line from the ECU to a vacuum source on the engine.
    a. The intake manifold is the preferred vacuum source.
    b. Using an External MAP sensor is recommended to minimize pinching rubber lines run into the passenger compartment resulting in bad readings.
14- If you are supercharged or turbocharged, you are required to run an external MAP sensor. The connector on the harness is compatible with most standard GT150 style sensor. **Note: List of vendors to order sensors can be found on page 15.**
15- Remove one of the factory's narrowband O2 sensors (either bank will work).
16- Install the new wideband O2 sensor where the factory sensor was removed.

17- Plug the wideband O2 sensor into the new sub-harness “Primary Wideband” connection.
18- Make sure to secure all wiring away from hot components.
19- Reinstall passenger side splash shield and wheel.
20- Lower the vehicle back down to the ground.
21- Make all the connections to your sensors in your engine bay. Fuel pressure, Oil pressure, External MAP and Flex Fuel are not required but are recommended for the Holley ECU to read this data.
22- Plug the connectors on the main harness into the Holley EFI ECU.
23- Plug the included USB to CAN adapter into one of the CAN connections in the main harness. If you purchased a digital dash (optional) you may plug this into the other CAN connection in the main harness.
24- The ECU may be placed directly under the passenger seat. Holley offers a seat bracket for the 79-04 Mustangs (not included) if you wish to secure it to a bracket. If you ever need to service the ECU, you will need to remove the seat again.
25- Make you battery positive and negative connections on the new power harness.
26- Inside the car plug the power harness into the Holley EFI ECU.
27- Re-connect the battery (make sure the key is in the OFF position).
28- Install the MFKustoms adapter into the factory EEC connector. This can be done once car is up and running and everything is working.
29- Reinstall passenger side kick panel.
30- Reinstall passenger side door sill plate.
31- Reinstall passenger side seat into the vehicle.

This completes the basic installation steps.

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Inputs & Outputs

To simplify the setup of Inputs and Outputs in your Holley EFI ECU, we've developed custom Individual Configuration Files (ICFs) specifically for the MFAdapter. These files are available on the product page of our website under the “Specifications” section. We've also created a YouTube walkthrough that guides you through the process of importing the ICF file into your Holley software. Once imported, you can use the table below to Pin Map each input and output option accordingly.

Unlike the Holley installations kits, the MFAdapter does not come with an Inputs & Outputs connector. This is because we utilized the inputs and outputs to preserve some of the factory original functionalities along with adding additional functionalities.

Inputs		Outputs	
1	A/C Kick	1	Low Speed Fan
2	Secondary Wideband sensor*	2	High Speed Fan
3	Flex Fuel sensor	3	A/C Wide Open Throttle Shutdown
4	Vehicle Speed	4	Idle Air Control

* Secondary Wideband sensor on Input 2, is for those who have a chip to tune their car and are moving to Holley. It is common for users to pin a 0-5v wideband output from a standalone controller to pin 27 on the EEC connector. Pin 27 was originally setup for the EGR valve. If you don’t have a secondary wideband, you can use EGR valve connector in the engine bay for an additional sensor as it will have all three wires needed (e.g. sensor ground, 5v reference, and signal).

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Automatic Transmission Control

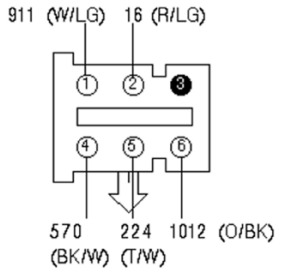
FACTORY EQUIPPED AUTOMATIC TRANSMISSION:
When choosing the automatic transmission option, there are two extra unconnected wires included with the main harness that are NOT NEEDED if your 1994 or 1995 Ford Mustang is still equipped with the original automatic transmission. In other words, these two wires are not needed when both the over drive on/off button and the light on your gauge cluster already work.

ALL OTHERS:
OD TOGGLE (Overdrive Toggle): The Brown wire should be connected to a momentary switch which then turns overdrive on and off. The momentary switch needs to be connected to 12v.

OD STATUS LIGHT (Overdrive Status Light): The Light Blue wire should be connected to pin 1 on the TCSM connector, see Diagram 1 for pin location. This will control the light on the gauge cluster. See Diagram 2 for typical location of connector.

Diagram 1:

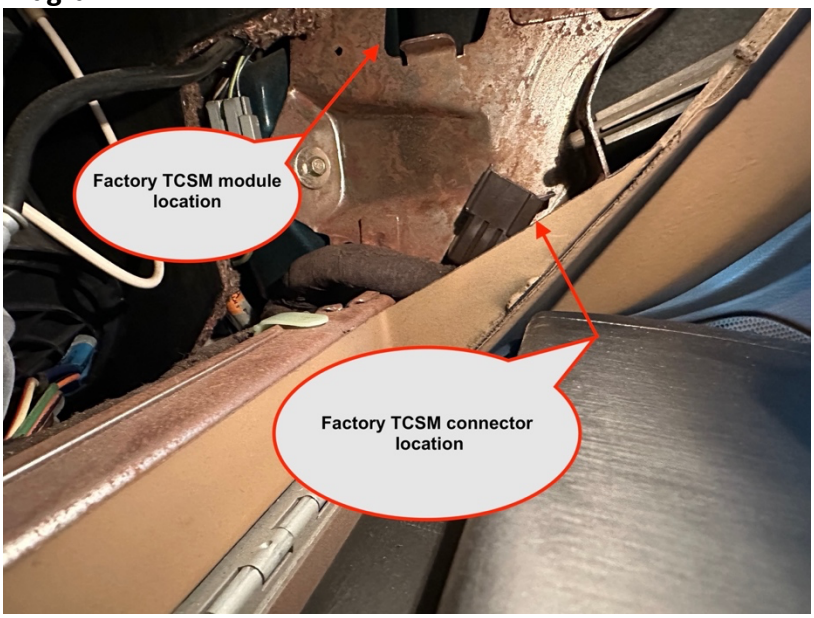
C202 Transmission Control Switch Module (TCSM)



C202 (BROWN)
TRANSMISSION CONTROL SWITCH MODULE (TCSM)

PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
1	911 (W/LG)	Output to Transmission Control Indicator Lamp
2	16 (R/LG)	HOT in START or RUN
3	-	NOT USED
4	570 (BK/W)	Ground
5	224 (T/W)	Input Transmission Control Switch
6	1012 (O/BK)	Transmission Control Switch Module Output to PCM

Diagram 2:


Factory TCSM module location
Factory TCSM connector location

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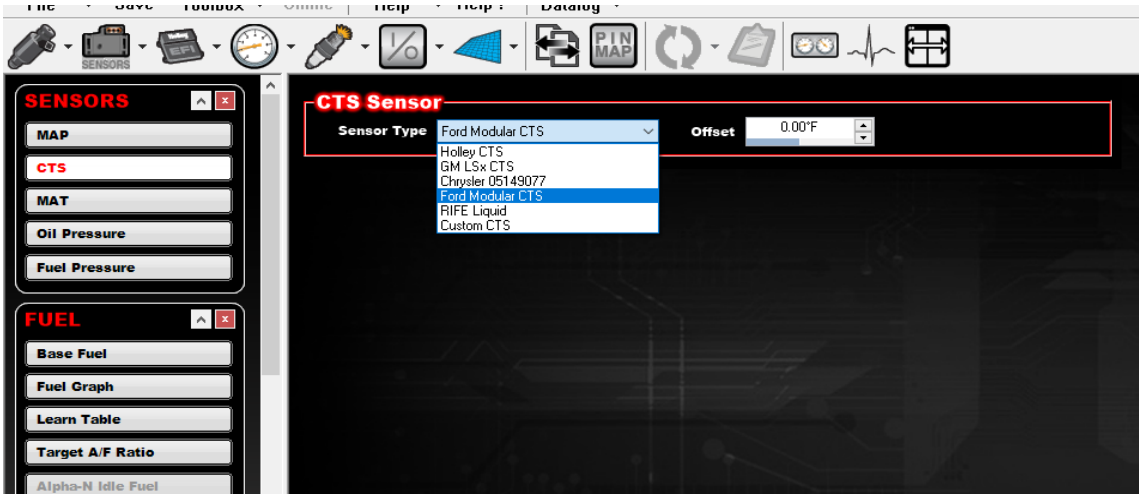
Setup in the Holley EFI Software

In the Holley EFI software, you will need to set up your sensors for the ECU to see the appropriate data. The Ford Modular and Small Block Engine family shared the same sensor scaling on many sensors until around 2004.

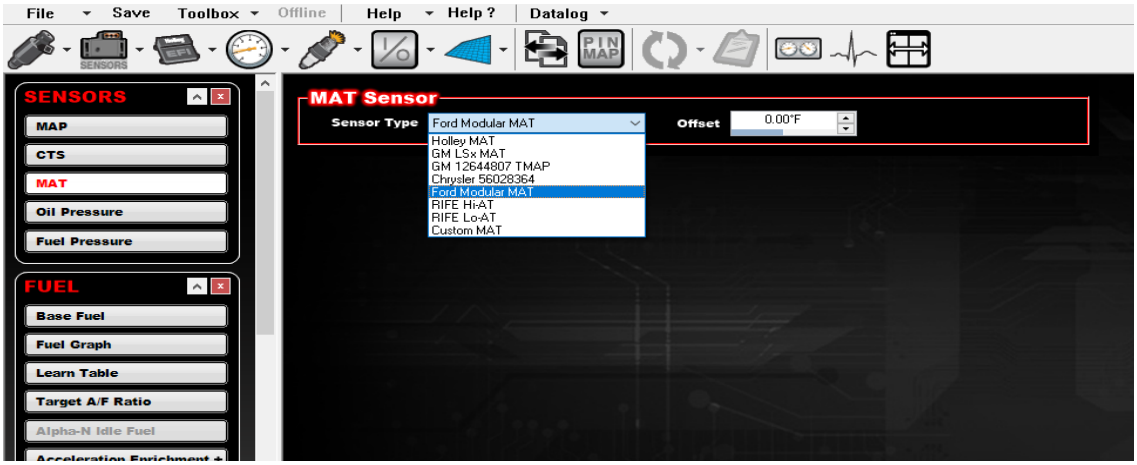
Coolant Temp Sensor (CTS)

Select “Ford Modular CTS” from the drop-down list.



Manifold Air Temp Sensor (MAT)

Select “Ford Modular MAT” from the drop-down list. Also known as Air Charge Temperature (ACT) or Intake Air Temp (IAT). This should be installed before the throttle body to prevent heat soaking.



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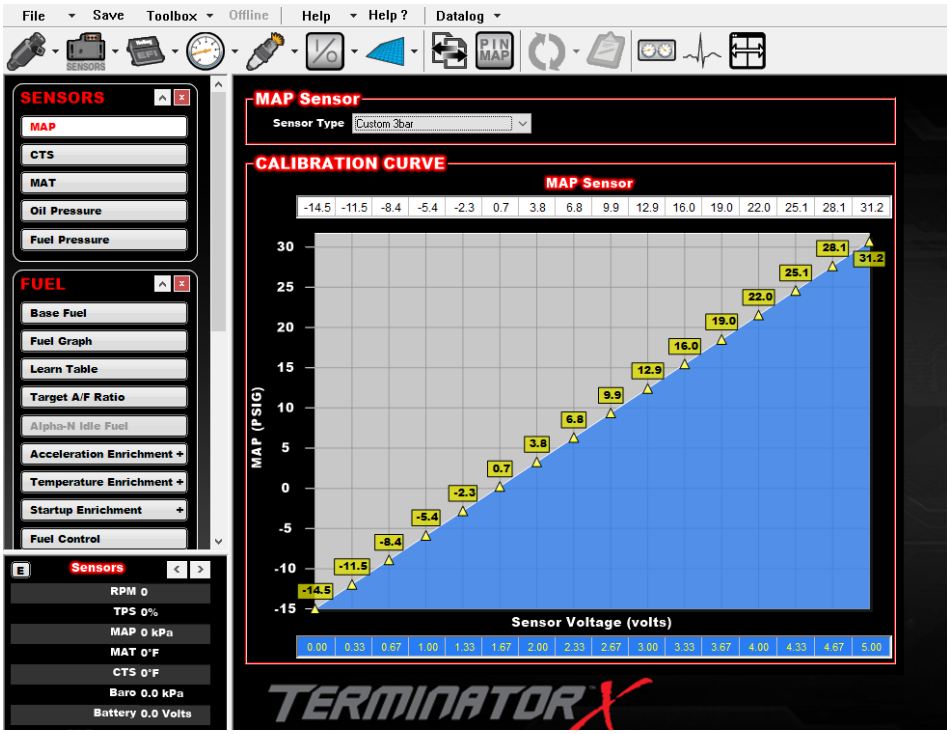
Manifold Air Pressure Sensor (MAP)

If you purchased an external MAP sensors, you will need to input the MAP sensor calibration data.

Example of a 3bar MAP sensor:



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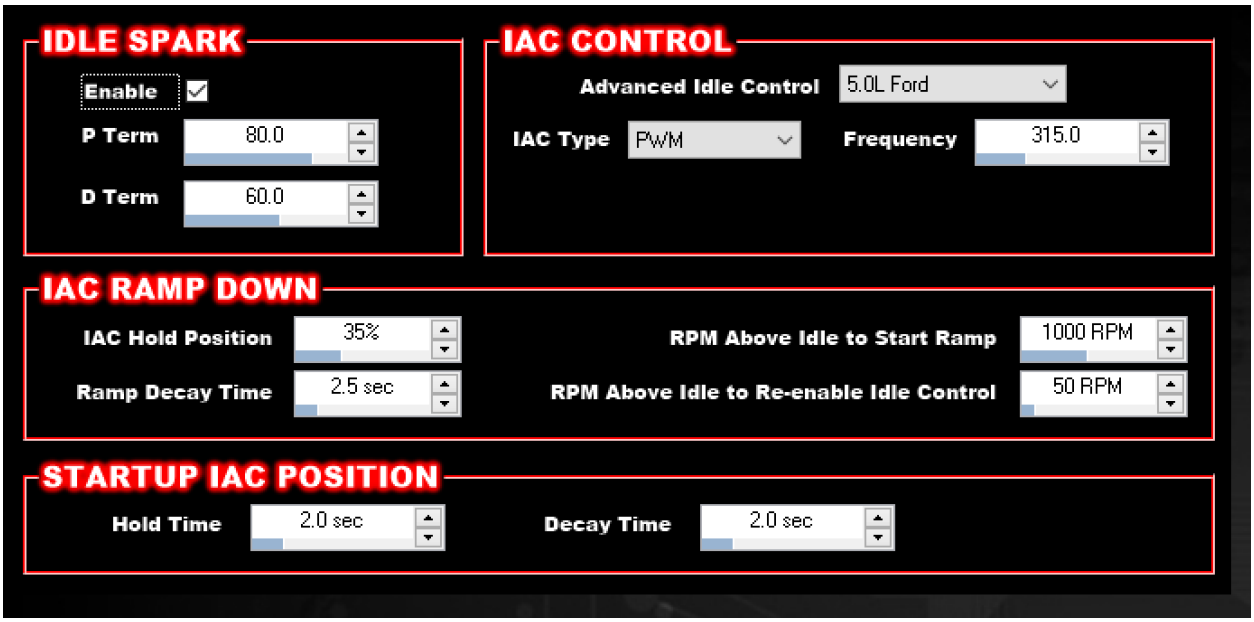
Idle Air Control (IAC)

The Ford IAC motor will need to be changed in the software (the digital dash is unable to make this change). Change this to 5.0L Ford and switch the type to PWM. Also switch the frequency to 315 as this should deliver the better results.



If you have any additional questions on your installation, please email:
support@mfkustoms.com

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Additional Required Components – Terminator X/X Max

Part Number	Name
554-152 or 554-153	Holley Terminator X / X Max
558-443	Holley CAN to USB Cable
558-308	Holley ECU Power Harness
17025/ 17212	Bosch LSU 4.9 Wideband sensor

Additional Required Components – HP/Dominator

Part Number	Name
554-113 or 554-114	Holley HP / Dominator
558-443	Holley CAN to USB Cable
558-308	Holley ECU Power Harness
554-101 or 554-100	Bosch or NTK Wideband sensor

Optional Components – All ECUs

Part Number	Name
554-157	HP / Terminator X and X Max seat mount bracket
554-156	Dominator seat mount bracket
553-108	Holley 3.5” Handheld Screen
553-200	Holley 5” Screen with GPS

Sensor Vendors

LowDoller Motorsports - https://lowdoller-motorsports.com/
Scarlett Solutions - https://scarlettssolutions.com/
RIFE Sensors - https://motionraceworks.com/collections/rife-sensors