FlexLink™ Wiring Guide

Thank you for purchasing the **FlexLink™** Fuel Content Communication System from Advanced Fuel Dynamics™. The **FlexLink** provides accurate fuel content data via our ProFlex Connect™ app available in the Apple AppStore and on GooglePlay. The **FlexLink** also provides standard 5v signal input and output for data logging fuel content and fuel temperature. The **FlexLink** is an important part of your complete flex fuel solution for GM ECUs, standalone ECUs and many other vehicles.

If you have installation questions or need tech support please call 866.902.3835 or email us at info@afd-usa.com.

The **FlexLink** has numbered ports on each end indicated by the digit 1 and 2.

Port 1 is for the sensor connectivity and 5v input.

Port 2 is for 5v output as well as a power and ground.

Harnesses are in numbered bags: Refer to the chart below to find the harnesses that apply to your application:

Application	Harness Number	FlexLink Port Number	
Cars with existing GM Content Sensor	1	1	
GM LT and 6.2 Truck Engines	3	1	
	4	2	
GM LS Engine	3	1	
	5	2	
Subaru w/HP Tuners	3	1	
	6	2	
All Other Engines w/Factory Type ECU	2	2	
	3	1	
Engines with aftermarket stand alone ECU	2	2	
	3	1	

NOTE: You will find a single purple wire in all FlexLink kits. This wire is used only during tuning sessions and can be stored in your glovebox. You will not need it for installation.

The instructions below are separated by application. Find your application and follow the instructions.

Vehicles with existing GM/Continental fuel content sensor already installed:

1. Unplug the existing fuel content sensor connector.
2. Locate harness #1, Sensor Jump Wire connector harness.
3. Connect the male sensor connector on Harness 1 into the sensor.
4. Connect your existing sensor harness to the female sensor connector on the FlexLink harness.
5. Connect the FlexLink port connector to Port 1 on the FlexLink
6. Download ProFlex Connect app from your app store and connect.

GM LT/LS Applications:

Fuel Sensor Installation:

NOTE: If you car is warm or has recently been operated the fuel system will be under pressure. Fuel may escape when disconnecting the line. Use a rag to protect your hands, eyes and underwood area from fuel.

1. Using a 3/8" fuel line disconnect tool, disconnect the fuel line at the inlet side of the fuel rail.
2. Insert on side of the fuel sensor into your original fuel line and push to connect.
3. Attach the supplied fuel line to your fuel rail fitting.
4. Loop the supplied fuel line and attach to other side of the fuel sensor.

NOTES: The fuel sensor is not directional. Also, do not mount the fuel sensor. It is made to operated in space. The sensor is sensitive to vibrational frequencies and can be inaccurate when hard mounted.

Sensor Harness (harness 3): The sensor harness requires you to add a pin to your ECU plug. This is not difficult but it can be challenging. If you are not confident in this procedure we suggest you leave this step for your tuner to complete when you visit to have your flex maps turned on.

1. Insert the sensor connector into the plug on the fuel sensor
2. Insert the FlexLink port connector into port 1 on the FlexLink module
3. Find the flex fuel data reference pin location for your ECU **(See guide and images below)**
4. Disconnect your negative battery terminal (black)
5. Disconnect the plug on your ECU
6. Remove the shroud from the ECU plug to access the pin ports
7. Insert the yellow wire on the Sensor harness into the data reference pin opening. Note that you may have to remove a plastic dummy plug from this location.

8. Gently tug the data reference wire to make sure it is properly seated.

9. Replace the connector shroud and plug in to your ECU

NOTE: The FlexLink system is inactive until your flex maps have been activated by a tuner or via your own tuning tool. It is safe to drive your car on gasoline with the system fully installed.

Power Harness (Harness 4 for LT, Harness 5 for LS) Unplug your purge valve

1. Locate your fuel pressure purge valve

2. Unplug the purge valve connector.

3. Plug the male end of the purge valve jump connector into the purge valve

4. Plug the female end of the purge valve jump connector to the original purge valve harness.

5. Plug the FlexLink connector into port 2 on the FlexLink module

6. Locate the main ground in the engine bay and connect the ground wire eyelet (black wire). DO NOT CONNECT DIRECTLY TO BATTERY.

Download the ProFlex Connect app from your app store and follow the instructions at the bottom of this document to connect to your FlexLink.

Your FlexLink system is **not** fully installed. Visit your local tuner to activate the flex maps in your ECU. Once this is complete your car will have full flex fuel capabilities.

WARNING: LT engines do not have enough fuel capacity in the stock fuel system to safely run full E85. We suggest running less than 30% ethanol until you have upgraded your high pressure fuel pump. Running more than 30% ethanol can result in a lean condition and catastrophic engine damage.

Non-GM Applications for Factory Style ECU:

Sensor Installation:

NOTE: If you car is warm or has recently been operated the fuel system will be under pressure. Fuel may escape when disconnecting the line. Use a rag to protect your hands, eyes and underwood area from fuel.

1. Using a 3/8" fuel line disconnect tool, disconnect the fuel line at the inlet side of the fuel rail.

NOTE: For MOPARs with 6.2L HEMI disconnect the crossover fuel line between the fuel rails.

2. Insert on side of the fuel sensor into your original fuel line and push to connect.

3. Attach the supplied fuel line to your fuel rail fitting.

4. Loop the supplied fuel line and attach to other side of the fuel sensor.

NOTES: The fuel sensor is not directional. Also, do not mount the fuel sensor. It is made to operated in space. The sensor is sensitive to vibrational frequencies and can be inaccurate when hard mounted. For aftermarket or upgraded fuel systems you will need to adapt to the sensor which uses a 3/8" (-6an) GM quick connect fitting. If you have a -8an or larger fuel system please run a -6an bypass line for the sensor to avoid creating flow restrictions in your fuel system.

Sensor Harness (harness 3):

1. Insert the sensor connector into the plug on the fuel sensor
2. Insert the FlexLink port connector into port 1 on the FlexLink module
3. Find the flex fuel data reference pin location for your ECU (Guide at bottom of this document)
4. The yellow wire is for inputting sensor data to your ECU via a new pin. In most non-GM applications you will not use this wire, which can be rolled and zip tied or clipped off of the harness.

Power Harness (Harness 2)

1. Locate your fuse panel.
2. Insert the red wire into the fuse panel in a location that is powered only when the key is in the on position. The FlexLink system draws less than 1amp and is safe for most power-on circuits.
3. Connect the FlexLink port connector to port 2 on the FlexLink module
4. Locate the main ground in the engine bay and connect the ground wire eyelet (black wire). DO NOT CONNECT DIRECTLY TO BATTERY.

Installation is complete. Follow the instructions below to download and connect with the ProFlex Connect app.

Aftermarket Stand Alone ECU:

Sensor Installation:

NOTE: If you car is warm or has recently been operated the fuel system will be under pressure. Fuel may escape when disconnecting the line. Use a rag to protect your hands, eyes and underwood area from fuel.

1. Using a 3/8" fuel line disconnect tool, disconnect the fuel line at the inlet side of the fuel rail.

NOTE: For MOPARs with 6.2L HEMI disconnect the crossover fuel line between the fuel rails.

2. Insert on side of the fuel sensor into your original fuel line and push to connect.
3. Attach the supplied fuel line to your fuel rail fitting.
4. Loop the supplied fuel line and attach to other side of the fuel sensor.

NOTES: The fuel sensor is not directional. Also, do not mount the fuel sensor. It is made to operated in space. The sensor is sensitive to vibrational frequencies and can be inaccurate when hard mounted. For aftermarket or upgraded fuel systems you will need to adapt to the sensor which uses a 3/8" (-6an) GM quick connect fitting. If you have a -8an or larger fuel system please run a -6an bypass line for the sensor to avoid creating flow restrictions in your fuel system.

Sensor Harness (Harness 3):

1. Insert the sensor connector into the plug on the fuel sensor
2. Insert the FlexLink port connector into port 1 on the FlexLink module
3. Find the flex fuel data reference pin location for your ECU

4. The yellow wire is for inputting sensor data to your stand alone ECU via the ECUs data input wire. Locate your ECU harness data input wire for flex fuel (open cell) and connect the yellow wire to the ECU wire using a solder joint and heat shrink or a high quality spade connector.

NOTE: For signal and data integrity we suggest a solder joint where possible.

Power Harness (Harness 2)

1. Locate your fuse panel.
2. Insert the red wire into the fuse panel in a location that is powered only when the key is in the on position. The FlexLink system draws less than 1amp and is safe for most power-on circuits.
3. Connect the FlexLink port connector to port 2 on the FlexLink module
4. Locate the main ground in the engine bay and connect the ground wire eyelet (black wire). DO NOT CONNECT DIRECTLY TO BATTERY.

Installation is complete. If your ECU already has a flex fuel reference map installed from the factory then you are ready to run gas/ethanol blends. If not, you or your tuning professional will need to load a 1-5v flex fuel scaling map to the open data cell in the ECU.

Follow the instructions below to download and connect with the ProFlex Connect app.

MPI Subaru WRX, STi and Forrester:

Fuel Sensor Installation:

NOTE: If you car is warm or has recently been operated the fuel system will be under pressure. Fuel may escape when disconnecting the line. Use a rag to protect your hands, eyes and underwood area from fuel.

1. Locate and remove the fuel line that connects the inlet side fuel rail to the firewall (bulkhead).
2. Connect the two supplied fuel lines to each side of the sensor. Push until you hear a click.
3. Replace the original fuel line by connecting the new sensor and line assembly to the bulkhead and fuel rail fittings. Push until you hear a click.

NOTES: The fuel sensor is not directional. Also, do not mount the fuel sensor. It is made to operated in space. The sensor is sensitive to vibrational frequencies and can be inaccurate when hard mounted.

Sensor Harness (Harness 3):

1. Insert the sensor connector into the plug on the fuel sensor
2. Insert the FlexLink port connector into port 1 on the FlexLink module
3. Locate the main ground under the hood and install the black ground wire eyelet. DO NOT CONNECT DIRECTLY TO THE BATTERY TERMINAL.

NOTE: The FlexLink system is inactive until your flex maps have been activated by a tuner or via your own tuning tool. It is safe to drive your car on gasoline with the system fully installed.

Power and Data Harness (Harness 6):

1. Disconnect the rear O2 sensor.

2. Connect the 02 sensor connector on harness 6 to the rear O2 sensor

3. Roll and secure the original O2 sensor wire with a zip tie to prevent damage

4. Connect the port sensor on the harness to port 2 on the FlexLink

Download the ProFlex Connect app from your app store and follow the instructions at the bottom of this document to connect to your FlexLink.

Warning: Your FlexLink system is **not** fully installed. Visit your local HPTuners authorized shop or use an HPTuners MPVI2 tuning tool to install the flex maps in your ECU. All Subarus require injector and fuel pump upgrades to safely run full E85. Once these steps are complete your car will have full flex fuel capabilities.

ProFlex Connect Virtual Ethanol Gauge App:

With FlexLink you can see your exact fuel content in real time via our smartphone app.

To see ethanol content wirelessly download the app and follow our instructions on using the app the same as with our Commander systems. The app is called ProFlex Connect in the App Store and the Google Play Store.

Apple Devices: If you have an Apple you can simply open the app, start your car and press connect. The app will connect to the FlexLink via BT Wireless and read out ethanol content by percentage.

Android Devices: If you have an Android you must set up permission for the ProFlex Connect app.

1. **Pull down your global settings menu from the top of your screen and make sure your global location services are "on". Close the menu.**

2. **Go to settings - applications - ProFlex Connect - permissions. In permissions make sure the permission for the app to use location services is "on". Close settings.**

3. **Open the ProFlex Connect app, start your car and hit connect. Your phone should now display ethanol content by percentage.**

NOTE: If the app does not connect on your Android device after you've completed step 3, go to your BlueTooth device list and pair with the device called "Dual SPP". This is only necessary on a handful of Android devices and once paired the app should continue to connect whenever you have it open and press connect.

GM EMC Content Sensor Pin Location Guide

Fuel content data pin locations and vehicle models in the chart below are provided to the best of our knowledge based on industry data and customer installation feedback. You may wish to speak to your local HPTuners authorized dealer or consult the HPTuners Forum for verification on your specific model. To identify your ECM look for the model number on the bottom of the unit or plug your serial number into Google as follows: "ECM (serial number) GM". GM does not always make clean break ECM changes by model year so please verify your ECM model number before pinning or seek professional installation at an HPTuners authorized installation facility. Images of each ECM appear on the next page for reference.

NOTES: E78 ECM is a rare unit. Information on this ECM is hard to verify.
E40 ECM pinout information is hard to verify.
E90 ECM is hard locked from the factory and must be physically unlocked before tuning. No flex fuel pinout information exists for the E90 ECU as of this printing.

ECM Model	Vehicle Models	Pin Location	Connector ID
E38	2006-16 LS2 (some), LS3, LSA, LS9 and V8 truck and SUV	40	Black Connector
E67	6.2 LSA with forced induction (CTS-V) LS9 Corvette, 2010-15 Camaro, 1999-14 Truck and SUV	5	Connector 1
E92	2016 LT1, LT4 direct injection Camaro, Corvette, Truck, SUV w/V8	38	Blue Connector
E92A	2017-up LT1, LT4 direct injection Camaro, Corvette, Truck, SUV w/V8	38	Blue Connector
E40	2006-13 Corvette, 2005-06 GTO, Trailblazer SS and 5.3l	4	Light Grey Connector
P59	2003-05 Corvette, 2004 LS1 GTO, 2003-05 V8 Truck and SUV	56	Blue Connector
E78	2011-19 2500 Series Truck and SUV with 6.0l V8	34	X3 Connector
E90	2019-21 5.3l and 6.2l Truck and SUV	No available info	No available info

E40 ECM

E38 ECM

E67 ECM

E59 ECM

E92/E92A ECM

E78 ECM

E90 ECM