Sensor Based Flex Hardware Installation - 2018-2023 Mustang GT

Parts needed

Fuel system

- **(2) - Tanks Inc. Fuel Rail Fitting Adapters 640853 or equivalent -6an to 3/8 quick connect adapter**
- **(1) -6an male to -6an female 45 degree fitting**
- **(1) -6an male to -6an female 90 degree fitting**
- **(1) -6an 16” PTFE hose with 90 degree end - Fragola Performance Systems 6000 Series PTFE-Lined Braided Stainless Pre-Made Hoses 6026-1-2-16BL or equivalent**
- **(1) -6an 12” PTFE hose with 45 degree end - Fragola Performance Systems 6000 Series PTFE-Lined Braided Stainless Pre-Made Hoses 6026-1-4-12BL or equivalent**
- **(2) - Summit Racing™ AN O-Ring to AN Adapter Fittings SUM-220163B**
- **(1) - Radium Engineering Split-Flow Flex Fuel Sensor Adapters 20-0589**

Electrical

- **(2) - AEM Electronics Wiring Connectors 35-2620**
- **(1) - Pico Add-A-Circuit Fuse Holders 0954PT (or equivalent micro 2 fuse add a circuit)**
- **(1) - 2.5amp micro 2 fuse**

- **2018 - 2019 only: (1) - AEM Electronics CD-7 Plug and Play Adapter Cables 30-2217**

- **2020-2023 only: (2) gateway T harness from https://tharnessguy.com/product/flgw-ford-gateway-harness/ (site requires minimum order of 2).**

- **Assorted crimp connectors/heat shrink/ ring terminals/ wire loom**

Zeitronix specific parts

- **Zeitronix ZCA-2 CANBUS kit with or without gauge (gauge preferred so user flex can be used if canbus integration does not immediately work)**

- **USB to RS323 adapter -https://www.amazon.com/gp/aw/d/B0759HSLP1?psc=1&ref=ppx_pop_mob_b_asin_title**

- **DB11 to RJ11 adapter- https://www.amazon.com/gp/aw/d/B0CCS6SXHM?psc=1&ref=ppx_pop_mob_b_asin_title**

Misc.

- **Mounting bracket from Lowe's - Simpson Strong-Tie 2-in x 3-in 12-Gauge Galvanized Steel Angle. https://www.lowes.com/pd/Simpson-Strong-Tie-ML-2-in-x-3-in-12-Gauge-ZMAX-174-Galvanized-Medium-L-Angle/1002624394**

- **Sound tube delete kit**

- **Zip ties to secure wiring**

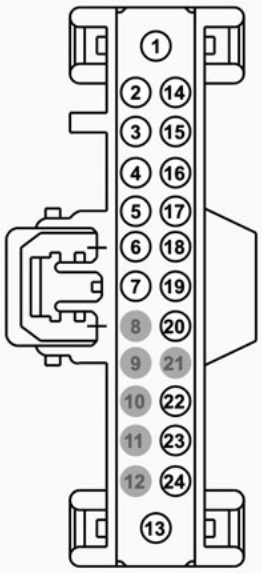
Directions:

2020-2023 cars- Bypass DLC

On 2020 and newer cars, Ford implemented a Data Link Connector that will block certain inputs from traveling through the OBD port. The DLC is connected directly to the back of the OBD port and the system harness plugs into the back of the DLC. We need to create a T harness to maintain factory OBD functionality but allow us to send signals through the system wiring network behind the DLC.

Connector Viewer - 150 | C2431

Connector:	Description	Color	Harness	Base Part #	Service Pigtail
C2431	GATEWAY MODULE	BK	14401	part# N/A	See Below



Check for Terminal Part Numbers

Pin	Circuit	Gauge	Circuit Function	Qualifier
1	GD215 (BK-GY)	20	GROUND - INSTRUMENT PANEL STRUCTURE # 2ND POINT	
2	VDB36 (BN-YE)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED DIAG 2	
3	VDB35 (BU-WH)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED DIAG 2 HIGH	
4	VDB34 (GY-YE)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED DIAG 1 LOW	
5	VDB33 (WH-BN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED DIAG 1 HIGH	
6	VDB32 (VT)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 4 LOW	
7	VDB31 (BU)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 4 HIGH	
8	*	*	Not Used	
9	*	*	Not Used	
10	*	*	Not Used	
11	*	*	Not Used	
12	*	*	Not Used	
13	SBP29 (GY-RD)	18	FUSE - 29 OR CIRCUIT BREAKER	
14	GD214 (BK-BU)	20	GROUND - INSTRUMENT PANEL STRUCTURE	
15	VDB30 (WH)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) LOW	
15	VDB30 (WH)	26	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) LOW	
16	VDB29 (GN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) HIGH	
16	VDB29 (GN)	26	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) HIGH	
17	VDB26 (GY)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) LOW	
17	VDB26 (GY-BU)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) LOW	
18	VDB25 (GN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) HIGH	
18	VDB25 (GN-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) HIGH	
19	VDB05 (WH)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED LOW	
20	VDB04 (BU)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED HIGH	
21	*	*	Not Used	
22	VDB07 (VT)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED LOW	
23	VDB06 (GY)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED HIGH	
24	SBP12 (GN-RD)	22	FUSE - 12 OR CIRCUIT BREAKER	
24	SBP12 (GY-RD)	22	FUSE - 12 OR CIRCUIT BREAKER	

1. **Take T-harness and splice wire onto leads to pin 19 and pin 20. See diagram above for pin locations.**

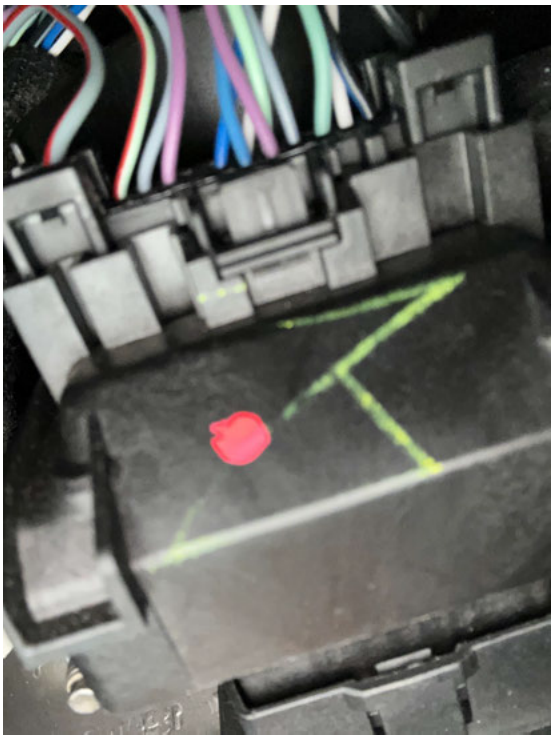
2. **Alternatively, you can use this diagram to wire an additional OBD port off of this harness and use the AEM OBD adapter to plug in. I have not done this yet but will be doing so in the next couple weeks and will post how I did it.** Edit: done, see below

3. **Terminate new wires with Deutsch pins and insert into connector. About a 4ft length of wire is needed to run behind the console to the passenger side footwell fuse box.**

3. Terminate white/red and white/black wires on zeitronix harness. White/red is can high. Insert into deutsch connector.

4. Connect to Zeitronix unit and zip tie under passenger side dash above fuse box. Double check the wires from your harness are matched can high to can high to the zeitronix harness etc.

5. Insert T-harness in between back of factory OBD port and factory harness. Here is where you want to detach the factory harness from the OBD port and plug in your t harness. This shot is of the back of the OBD port looking from under the dash:



These directions are for the most simple setup. There are other configurations you can make with these diagrams. I have my harness setup currently with an spare OBD port routed to the glovebox for datalogging. Gray deutsch connector goes to the ECA-2 wires:

The only thing not pictured in my photos is I added a 7 pin Deutsch connector to the harness in the area circled in red below so the wiring can be left in place on the passenger side of the dash and the t harness removed if the car has to go into ford for warranty work

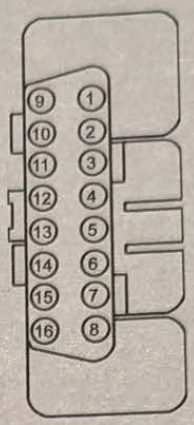
See below diagram for connecting a spare OBD port:

150-53 Connector Views

C251

PIA

DATA LINK CONNECTOR (DLC) (part# N/A)



Pin	Circuit	Gauge	Circuit Function	Qualifier
1	-	-	Not Used	
2	-	-	Not Used	
3	* (*)	*	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) HIGH	
4	* (*)	*	GROUND - INSTRUMENT PANEL STRUCTURE # 2ND POINT	
5	* (*)	*	GROUND - INSTRUMENT PANEL STRUCTURE	
6	* (*)	*	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED HIGH	
7	-	-	Not Used	
8	-	-	Not Used	
9	-	-	Not Used	
10	-	-	Not Used	
11	* (*)	*	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 2 (UPPER) LOW	
12	-	-	Not Used	
13	-	-	Not Used	
14	* (*)	*	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED LOW	
15	-	-	Not Used	
16	* (*)	*	FUSE - 15 OR CIRCUIT BREAKER	


ER WARRANTY

View of connectors behind dash, behind glovebox with felt removed.

2018-2019 Cars: set up AEM OBD adapter

1. **This is pretty self explanatory except for the fact that AEM does not keep their wiring colors consistent. You will need to use a multimeter to determine which wire is wired to the Can-High pin of the OBD end of the harness. See above diagram for can high and can low pins on OBD connector. Ignore can high speed 2 etc.**

2. **Once this is determined, connect your zeitronix harness accordingly using the deutch connector. Again, white/red on the zeitronix harness is Can-High.**

3. **Connect the plugs and plug in the OBD adapter to the OBD port.**

Fuel System

1. **Assemble zeitronix flex fuel sensor into fuel bypass. Install -10an o-ring to -6an fittings into each end of bypass. Lube orings lightly.**
2. **Assemble hoses and bypass. Mock up & Clock fittings and adapters correctly so that they place the least amount of stress on the hoses once installed.**

See pic:

3. **Cut approximately 3/4 of an inch from the steel bracket. Drill a hole centered in the top of the bracket.**

4. **Use the two existing holes in the bracket to bolt to the flex fuel sensor/bypass. It will hang at a slight angle relative to the engine but puts it about level to the ground.**
5. **Mount the bracket/bypass to the sound tube push pin hole on the shock tower.**
6. **Disconnect the factory fuel line and reinstall the new lines by pushing the quick connect fittings onto the steel factory lines.**

Electrical

1. **Connect red wire of zeitronix to fuse tap.**
2. **Add ring terminal to black zeitronix wire and bolt to 10mm ground nut under passenger side dash above fusebox.**
3. **Cap all other zeitronix wires not used.**
4. **Plug fuse tap into fuse #35.**
5. **Remove gas pedal with 3 10mm bolts and disconnect connector.**
6. **Remove sound tube delete plug.**
7. **Drill hole in plug and feed zeitronix wiring harness through plug.**
8. **Install plug and pull harness into cabin.**
9. **Connect harness to flex fuel sensor.**
10. **Feed harness in cabin behind center console and connect to zeitronix unit under dash.**
11. **Reinstall gas pedal.**

Final Steps

1. **Ziptie all wires under dash appropriately.**
2. **Secure zeitronix unit under passenger side dash.**
3. **Connect programming cable to zeitronix unit and set values per PCMTec.**
4. **Inspect fuel system for leaks.**
5. **Follow PCMTec instructions to install tuning and first start.**