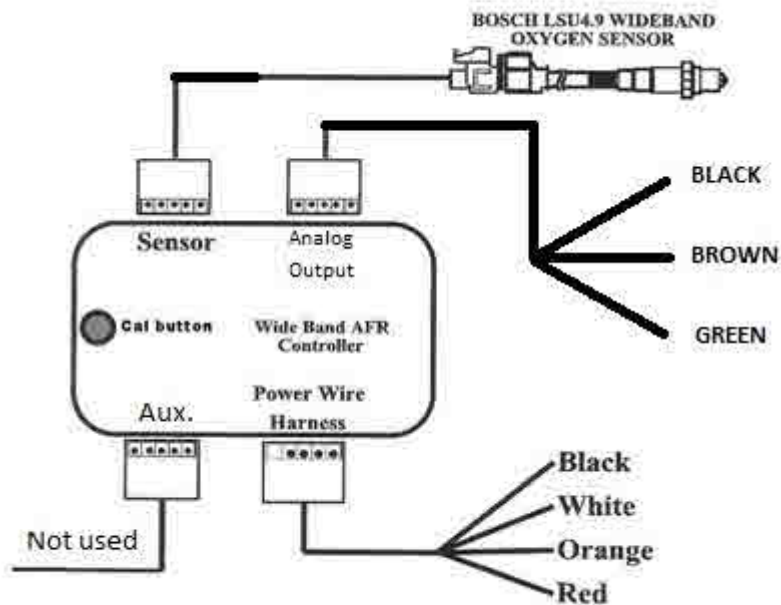


WIDEBAND AIR/FUEL KIT



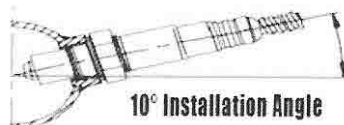
Parts included:

Bosch LSU4.9 Oxygen Sensor
Sensor wiring harness
Stainless weld in bung

Wideband AFR Controller
Power wiring harness
Output harness

Installation

1. Install the provided LSU4.9 sensor by welding the exhaust bung into the exhaust pipe. You must use the provided M18x1.5 bung if your vehicle does not have an open or existing one. Make sure the location of the bung is no less than a minimum of 18 inches after the exhaust ports.
 - a. If you have a turbo charger, the bung must be installed no less than a minimum of 36 inches after the exhaust ports, but before the catalytic converter. This also applies if you are using unleaded race fuel.
 - b. The bung must be positioned in such a way that the sensor is at a minimum of 10 degrees from a horizontal position with the electrical connection up to prevent a collection of liquid at the element during the warm up phase.



2. Route and secure the wire harness from the sensor into the vehicle, close to the controller's location.

3. The controller must be placed inside the vehicle away from the heat, water, moisture, dirt, and all moving parts. The controller also should be in an easy access location, so that it may be accessed for calibration, when necessary.
4. Once the controller is in its permanent location, secure and route the power wire harness for the controller.
 - a. Connect the **red** wire to a switched (ignition on) positive 12 volt source.
 - b. Connect the **white** wire to a switched (ignition on) positive 12 volt source.
 - c. Connect the **black** wire to a ground source (the wire going to pin 5 of the OBD2 port is a good source for signal ground but not required. It may eliminate the rare instance of a small error due to differences in ground potentials).
 - d. Orange wire is not used.

Analog Output Harness

Black - Ground (from your power connection - this can be connected to the input of a the data logging device if needed). This does not need to be connected to ground.

Brown - Wide band analog output 0-5v (0v = 10 AFR, 5V = 20 AFR). This wire will connect to the Interceptor analog input (see gauge instructions) or other data logging device.

Green - Narrow band analog output (narrow band simulator). Connect to the appropriate wire on factory O2 harness to prevent check engine light if this sensor has replaced a factory sensor.

Calibration Mode

No calibration should be needed initially. If over time a calibration is deemed necessary, this can be done after letting vehicle sit over night without engine running. Press the Cal button for 3 seconds to calibrate. This will take approximately 20 seconds to complete. After which time you can start the vehicle. Calibration should be done with key on engine off when the vehicle has not been run for several hours or sensor is in free air:

If you replace or change your sensor you must perform a calibration

Functions:

1. Prior to operation, the sensor must warm up for 30 seconds. This is a mandatory process every time the gauge and sensor are powered from a cold vehicle start. The output will remain at 5v (19.98-20.00 A/F) until the warm up phase is complete.
2. If the output of the controller becomes stuck at 20 then there is a sensor error detected. If the readings are way off at any given time and a calibration does not bring them back inline you may need to **reset** the controller. Check and confirm the connection of the sensor and wire harness to and from the controller unit. If the connections are secure and in place, press the button on the controller for 8 seconds to reset the controller to the original factory settings. If there is still no output contact sales@aeroforcetech.com or check sensor for contamination.

Interceptor gauge configuration

To configure the Interceptor to read A/F ratio, you'll need to enter the menu and choose the appropriate analog input. You'll then be able to enter a conversion. The number to enter for slope is 2, and 10 for intercept. The value displayed on the gauge when this analog input is chosen will now represent A/F ratio. You will typically see 14.5-14.8 at idle and cruise, and under WOT the reading will go richer (lower) depending on your tune. Our testing has shown the sensor's accuracy to be +/- 0.1 decimal place.

If you prefer to see Lambda rather than A/F ratio, set the slope to 0.136, and the intercept to 0.68. A properly tuned vehicle will display a lambda of ~1 at idle or part throttle when in closed loop operation.

If using E85 A/F ratio use slope = 1.33, intercept = 6.67. Stoich for E85 is 9.77 A/F ratio.

Note on ground potentials:

If the wide band ground is different than the Interceptor gauge ground, it's possible that you may experience an offset in readings due to ground potential differences. These can be unnoticeable to as much as 0.2 AFR in magnitude in rare instances. If you see readings that for example are off by .1 AFR despite doing a calibration this is most likely the cause. There is an easy fix, change the Intercept value that you entered into the gauge by the amount of error. For example, if you see 14.8 when you should see 14.7 at idle, change the intercept value to 9.9. This ground potential, if it exists, will cause a constant error throughout the readings, by changing the intercept value you will be correcting it throughout the range of readings.

Lambda vs Air/Fuel ratio:

Gasoline AFR = Lambda x 14.65

Methanol AFR = Lambda x 6.47

Propane AFR = Lambda x 15.7

Ethanol AFR = Lambda x 9.00

CNG AFR = Lambda x 14.5

Warranty

Aeroforce Technology Inc. warrants to the consumer that this wideband kit will be free from defects in material and workmanship for a period of six (6) months from date of the original purchase. Products that fail within this 6-month warranty period will be repaired or replaced at Aeroforce's option when determined by Aeroforce that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of the Aeroforce part. In no event shall this warranty exceed the original purchase price of the Aeroforce part nor shall Aeroforce be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product. Aeroforce does not warranty the Bosch LSU4.9 sensor. Warranty claims to Aeroforce must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 6 month warranty period. Improper use or installation, accident, abuse, unauthorized repairs or alterations voids this warranty. Aeroforce disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by Aeroforce. Warranty returns will only be accepted by Aeroforce when approval is given and/or accompanied by a valid Return Goods Authorization (RGA) number received from service@aeroforcetech.com. Product must be received by Aeroforce within 30 days of the date the RGA is issued.

Volts	Lambda	Gasoline AFR
0.00	0.683	10.00
0.16	0.705	10.32
0.31	0.725	10.62
0.47	0.747	10.94
0.62	0.768	11.24
0.78	0.790	11.56
0.94	0.811	11.8
1.09	0.832	12.18
1.25	0.854	12.50
1.40	0.874	12.80
1.56	0.896	13.12
1.72	0.918	13.44
1.87	0.939	13.74
2.03	0.960	14.06
2.18	0.981	14.36
2.34	1.003	14.68
2.50	1.025	15.00
2.65	1.045	15.30
2.81	1.067	15.62
2.96	1.087	15.92
3.12	1.109	16.24
3.28	1.130	16.54
3.43	1.152	16.86
3.59	1.173	17.18
3.74	1.194	17.48
3.90	1.216	17.80
4.06	1.236	18.10
4.21	1.258	18.42
4.37	1.280	18.74
4.52	1.301	19.04
4.68	1.322	19.36
4.84	1.343	19.66
4.99	1.356	19.98