

# Air/Fuel Ratio Monitor: Installation Guide

## Air/Fuel Ratio Meter: How it Works?

An Air/Fuel Ratio Monitor will take the guess work out of trying to tune your engine. An oxygen sensor, located in the exhaust passage, produces a signal that is read by the A/F Meter. The basic Air/Fuel Ratio Meter Kit is supplied with a standard single wire oxygen sensor. An optional 3 wire heated sensor is available at added cost for those requiring a faster warm up reaction time. The sensor must be hot, over 400 degrees before it will send a signal that the A/F Meter will respond to. You will normally experience a delay in the function of the A/F Meter until the oxygen sensor warms to operating temperatures.

## Installation

The A/F Meter should be cockpit mounted for easy visibility while driving your vehicle down the road. The A/F Meter requires a 2 1/16" mounting hole.

The oxygen sensor can be secured in the exhaust system by first drilling a 3/4" hole and then welding in the supplied 18mm threaded adapter. The oxygen sensor can then be threaded into the exhaust system. The oxygen sensor is best installed in a location where it can monitor all exhaust ports, upstream from the muffler and as close to the engine as possible. An adapter pipe with an 18mm threaded adapter welded into it already is also available for quick and easy installation. An oxygen sensor can also be used with a stock muffler system by welding the threaded adapter to the stock muffler housing.

## Single Wire Oxygen Sensor Hook-Up

The A/F Meter wire loom contains three wires. The black wire goes to terminal #2, the red wire to terminal #4 and the green wire to terminal #5. The black wire on terminal #2 at the meter is secured to the black wire coming from the Oxygen Sensor. This takes care of hooking up the oxygen sensor. Now back to the meter. Secure the red wire at terminal #4 to an ON/OFF 12 volt source such as the ignition switch. The green wire at terminal #5 must be secured to a good clean chassis ground. The meter must be grounded to complete the circuit. Meter lighting is activated by grounding one of the black wires exiting terminal #6 and connecting the other black wire to the headlight switch.

## Three Wire Oxygen Sensor Hook-Up

Same as with a single wire kit, the A/F Meter wire loom contains three wires. The black wire goes to terminal #2, the red wire to terminal #4 and the green wire to terminal #5. The black wire on terminal #2 at the meter is secured to the black wire coming from the oxygen sensor. The other two wires coming from the oxygen sensor are white. Secure one of the wires to a good clean chassis ground, it does not matter which wire you choose. Secure the other wire to an ON/OFF 12 volt source such as the ignition switch. This takes care of hooking up the oxygen sensor. Now back to the A/F Meter. The red wire at terminal #4 is also secured to an ON/OFF 12 volt source. Then the green wire at terminal #5 must be secured to a good clean chassis ground. The meter must be grounded in order to complete the circuit. Meter lighting is activated by grounding one of the two wires exiting terminal #6 and securing the other black wire to your vehicles headlight switch.

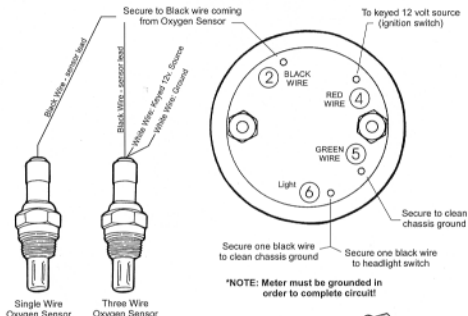
## Air/Fuel Ratios

The ideal A/F ratio when using gasoline is 14.7:1. This is expressed in pounds weight of air and fuel. An A/F ratio of 14.7:1 states that the engine is using 14 pounds of air for every pound of fuel. The optimal A/F ratio of 14.7:1 is referred to as Stoichiometric. The goal is to approach and maintain Stoichiometric or 14.7:1 A/F fuel ratio during idle and highway driving speeds. This is seldom attained by carbureted engines.

The A/F ratio should richen to 12.1:1 or even less during acceleration and top speed. The richer mixture is required during this to aid in cooling the engine and to provide for increased power output. Deceleration will show leaner A/F numbers such as 16.1:1 as the throttles close and the engine burns off all available fuel.

Attempting to run excessively lean A/F ratios can severely reduce engine life. High engine temperatures, backfire through the carburetor, surging at highway speeds, and hesitation just off idle are indications of lean A/F ratios.

Sluggish performance, black smoke, and poor economy are indications of a rich A/F ratio.



## Contaminates

Oxygen Sensors can be contaminated by the use of certain fuels and gasket materials! Once contaminated they have no cure or fix.

1. Do Not Use Leaded Fuels!
2. Do Not Use Gasket Material on exhaust system!
3. Do Not attempt to run methanol fuel!
4. Do Not connect 12 volts to sensor lead!



#2914 Adapter Pipe w/Threaded 18mm Adapter welded in.

