Uego 1000

Wideband Oxygen Sensor Installation Instructions

Uego 1000 Wide Band Oxygen Sensor Driver

The Uego 1000 is a state-of-the-art product for sensing the engine's air/fuel ratio. It is comprised of three main components; the wideband oxygen sensor, the sensor driver, and a display head featuring a large, easy to read .56 inch LED display. The Uego can be used to control a closed-loop fuel injection system without the display head if desired, but the sensor driver must be used. Both the sensor driver and the display head are housed in aluminum extrusion housings appropriate for rigors of the automotive environment.

The Uego 1000's sensor driver produces an analog voltage value proportional to the air/fuel ratio and the display head converts this voltage value into a real-time display of the corresponding air fuel ratio so it can be read and logged. Optional wiring harnesses allow the Uego to directly control closed-loop electronic fuel injection systems. **However the because wideband Uego operates over a 1 - 4V** range versus the 0 - 1V range of stock O2 sensors, and also because the wideband system does not respond as quickly as the stock sensors, it is not generally compatible with stock ECU's. The wideband Uego 1000 is best used for controlling closed-loop injection systems in conjunction with an aftermarket ECU such as "Xtreme EFI."

The Uego 1000 Wideband Oxygen Sensor Installaion is comprised of the three components shown above. They are, from L. to R., the Oxygen Sensor, the Display Head, and the Sensor Driver.

Uego 1000 Installation

The wideband oxygen sensor is mounted in the exhaust system in front of any catalytic converters and after any turbochargers; if the engine was originally equipped with an oxygen sensor, this location may be used. If installing the wideband oxygen sensor as a supplemental sensor, or on an engine/exhaust system not originally equipped with an oxygen sensor it should be located between 18 inches (450mm) and 36 inches (900mm) from the exhaust valves. The sensor will work anyplace in the exhaust, but the farther it is from the exhaust ports the slower it will respond (however it should never be mounted closer than 12 inches - 300mm -from an exhaust port). If the engine is equipped with individual exhaust runners (headers) the sensor should be mounted in the collector.

When selecting the location for the sensor keep in mind that it should be mounted as vertically as possible (i.e. the tip of the sensor, the part in the exhaust stream, should always be **lower** than the body (outside of the exhaust) and in an area that won't be submerged or subjected to direct water spray.

Mounting the Wideband Oxygen Sensor

If mounting in an existing sensor location:

1. Remove the original oxygen sensor.
2. Install the wideband oxygen sensor, using a **small** amount of anti-seize compound on the threads. **Be careful NOT to get any anti-seize compound on the sensor's tip area.**

If mounting the sensor in a new location you will need an 18mm X 1.5 threaded bushing. This is available from EFI Systems, Inc., or you may be able to procure it locally. Then:

1. Drill an 18mm hole in the exhaust system at the location selected.
2. Weld the threaded boss to the exhaust system over the hole

3. Screw the sensor into the threaded boss using a **small** amount of anti-seize compound on the threads. **Be careful NOT to get any anti-seize compound on the sensor's tip area.**

Mounting the Driver box

1. Mount the driver box securely in an area with good air circulation. It can be mounted under the hood but should be located as far as possible from any heat source. The driver box cable should point down, to prevent water from draining into it.
2. The driver box requires a switched +12V input, preferably one that is "On" only when the engine is running, capable of providing 5 amps current. Wiring the driver to a circuit that is on only when the engine is running will prolong sensor life.

   The red and black wires from the driver box with no connecting plugs are the power connections. The red wire is positive (+), the black wire is ground (-). The driver **MUST** be solidly grounded via a direct battery ground or a solid engine ground. **Do not** ground it through the vehicle chassis.
3. Connect the gray seven-wire connector on the driver wiring harness to the wiring harness from the wideband oxygen sensor.

Mounting the Display Head

1. The display head may be mounted anywhere direct sunlight won't strike the face of the display and it is easy to read.
2. Route the two-wire cable with the black connector from the display head through the fire wall and connect it with the black two-wire connector from the driver box.
3. Connect the red wire to a +12V switched circuit fused for 3 amps. As with the driver box, connect the black wire to a solid ground, not just the vehicle's chassis.
4. The blue wire activates the optional dimming feature. When it is connected to +12V you may use the potentiometer at the right rear corner of the unit to dim the display at night. If the blue wire is left unconnected the display will always be at full brightness.

The display head takes about 45 seconds to warm up and perform it's self-check before it will display data.

Data Display and Voltages

The table and graph on the following page shows the voltage outputs from the sensor driver and the corresponding air/fuel ratios. Should the output drop out of range on the low voltage (too rich) side the display will show "ERL." If it is out of range on the high (too lean) voltage side it will read "ERH."

The display head above is showing an Air/Fuel ratio of 14.7:1, corresponding to a sensor driver voltage output of 2.57 volts.

A/F Ratio	Volts
10:1	1.396
11:!	1.78
12:!	2.094
13:!	2.28
14:!	2.5
14.7:!	2.57
15:!	2.79
16:!	3.09
17:!	3.39
18:!	3.69
19:!	3.99
20:!	4.25