

Special Functions

Operation test at start: all LEDs light up in sequence.

Important Notes

In vehicles with electronic injection, the connection between the O2 sensor and the EFI unit must not be interrupted. Just put the wire from A/F Meter together.

For the installation of an O2 sensor, it is recommended to have the service done by an auto mechanics with experience in exhaust systems and/or by specialized personnel.

After the probe is heated, if the lit LED remains unchanged in the meter even with wide open throttle or at idle speed, the sensor might be defective and must be replaced (the service life of most O2 sensors is from 80 to 100 thousand km).

It is recommended to use a 1A fuse for the installation of the FuelTech A/F Meter. Use a 10A fuse to the O2 sensor 12V.

Warrant

This product warranty is limited to one year from the purchase date and covers defects from manufacturing origin only. Equipment violation, physical shock, installation problems and product misuse are not covered by warranty.

Parts included:

- 1 Digital Air/Fuel Meter
Dimensions: (0.3 in.) 87mm x (0.2in.) 40mm x (0.1in.) 18mm
- 78.7in. (2m) of cable
- 1 Instruction Manual

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DIGITAL AIR/FUEL METER

Knowing the air-fuel mixture ratio is very important when tuning high performance engines. A rich mixture (with more fuel than the stoichiometric ratio) may lead to loss of power and high consumption levels, whereas the opposite situation, a lean mixture, may lead to engine knock and, when lasting longer than a few seconds, may cause engine damage or, in the worst case scenario, internal components in the engine may melt due to the pressure and temperature in the combustion chamber.

Advantages of the FuelTech A/F Meter

This equipment's high technology, includes a dedicated microprocessor with 8MHz, makes it possible to bring together an ultra-compact design and the precision of digital technology.

It features an initialization function as well as a Lambda sensor defect or bad connection detection function.

The speed and precision in which the A/F Meter informs the mixture ratio is another important advantage it has over other meters. It makes it possible to read even the slightest variations, which could not be detected by multimeters or voltmeters used in the past.

Lambda Sensor

An O2 sensor is installed in the exhaust of vehicles equipped with electronic injection systems, and it can be installed in any car that does not feature it.

It must be installed in the exhaust, about 23.6in. (60cm) to 33.5in. (85cm) from the cylinder head, after the junction of all pipes in vehicles with a dimensioned exhaust manifold or after the turbine in turbocharged vehicles.

A/F Meter Installation

The red wire must be connected to a switched 12V.

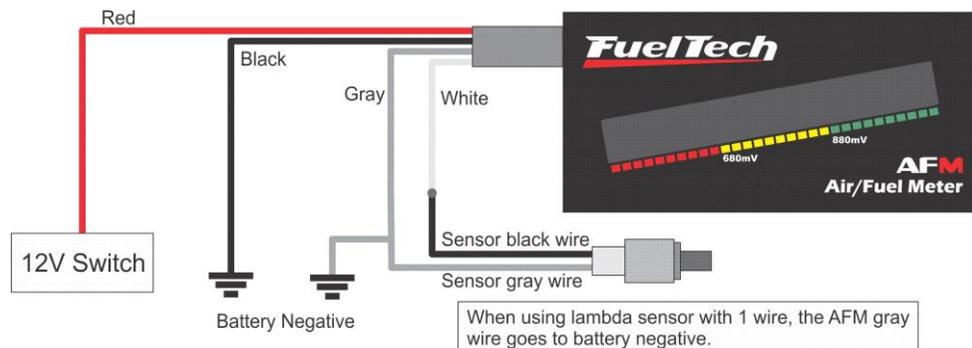
The black wire must be connected to the battery's negative terminal. This connection requires special attention.

Gray wire: must be connected to the sensor's gray wire and to the battery's negative terminal at the same time. If the sensor has only one wire, it must be connected to the battery's negative only.

A/F Meter's white wire must be connected to the signal cable from the lambda sensor (black wire).

In Bosch, NGK and similar sensors, the signal cable is BLACK and the other wires are:

- 3 wires sensor: the two white wires are heating resistances and must be connected one to the positive and the other to the ground.
- 4 wires sensor: identical to the probe with 3 wires with an additional signal ground (gray wire).



A/F Meter Use

When the engine is started, it activates an initialization procedure and all LEDs are tested. The lambda probe operates at temperatures between 360°C and 900°C, and it is necessary to wait until it is heated by the engine's exhaust gases. In the case of probes with 3 and 4 wires, the heating process is faster due to their heating resistances.

Once the sensor is heated, the readings of the air/fuel mixture are instantly initiated. In vehicles with electronic injection systems, the light will cyclically move between the red and green LEDs due to the constant adjustment of the mixture done by the electronic injection in order to lower fuel consumption.

When in WOT (Wide Open Throttle), the readings must stabilize at the desired level.

Ratio Table

The air/fuel ratio suggested in order to reach greater power is 12.5 (12.5 parts of air for 1 part of fuel) in vehicles using gasoline or 7.6 in vehicles using ethanol. The first green LED corresponds to both fuel types because the sensor refers to free oxygen in the exhaust, a measurement that is not influenced by the type of fuel used.

LED	Lambda	Sensor Voltage	Gasoline AFR	Ethanol AFR
Green		higher than 1150mV		
		1100mV		
		1050		
Yellow	0,78	980	11,5	7
		960		
		940		
	0,82	920	12	7,4
		900		
		880	12,7	7,7
		860	13	7,9
		840		
		820		
		800	13,5	8,2
Red		780		
		760	14	8,5
		740	14,1	8,6
		720	14,2	8,7
		700	14,4	8,8
		680	14,5	8,9
		630	14,7	9
		560	14,8	9,1
		490	15	9,2
		420		
	350			
	280	16	9,8	
	210			
	140	16,5	10	
	70			
		lower than 70mV		