

LAMBDA SENSOR

UNIVERSAL EXHAUST GAS OXYGEN



The Universal Exhaust Gas Oxygen (UEGO) sensor can measure a wide range of air/fuel mixtures. The sensor is based on ZrO₂ cells, held at an elevated temperature by an internal heater element. A current pumps oxygen between the sensing cavity and the exhaust to maintain a constant reference cell oxygen concentration. The measured value of this pumping current corresponds to the air/fuel ratio. Please request our installation datasheet for further details.

Electrical

- Range 10 to 30AFR (lambda 0.69 to 2.06)
Air fuel ratio (AFR) is based on propane Stoichiometric mixture which is 14.57
- Typical accuracy with software correction (Propane fuel, Gas temperature 450°C)

AFR 14.57	±0.005
AFR between 12 & 18	±0.1
AFR <12 or >18	±0.25
- Accuracy without software correction

AFR 14.57	<±0.005
AFR between 12 & 18	<±0.69
AFR <12 or >18	<±2.3
- Warm up time 30s in air with no gas flow
- Response time (to reach 50% of final value after a step change) 330ms typ.
- Thermal shift <±0.6AFR/100K change in tip temp.
- Ageing shift after 500hrs cycling between 300 & 800°C, 12 to 18AFR

AFR 14.57	±0.01
AFR between 12 & 18	±0.25
AFR <12 or >18	±0.40
- Pumping current must be kept within ±10mA
- Cell supply voltage 450±10mV
- Heater supply voltage 10.5±0.5V
- Heater resistance 2.7 to 3.3 ohm @ 25°C, 9.0 ohm @ 800°C
- Insulation resistance >1Mohm at 100V

Mechanical

- Stainless steel body
- Maximum mounting torque 45Nm
- Weight less than 120g (including cable)

Application

- Closed loop, optimised injection based on accurate AFR measurement.

Cable and Connection Definition

- 20 AWG un-screened cable
- Cable length is shown on the order details but any length up to 1050mm is available on request
- Various automotive and military standard connectors are available
- Standard Connection

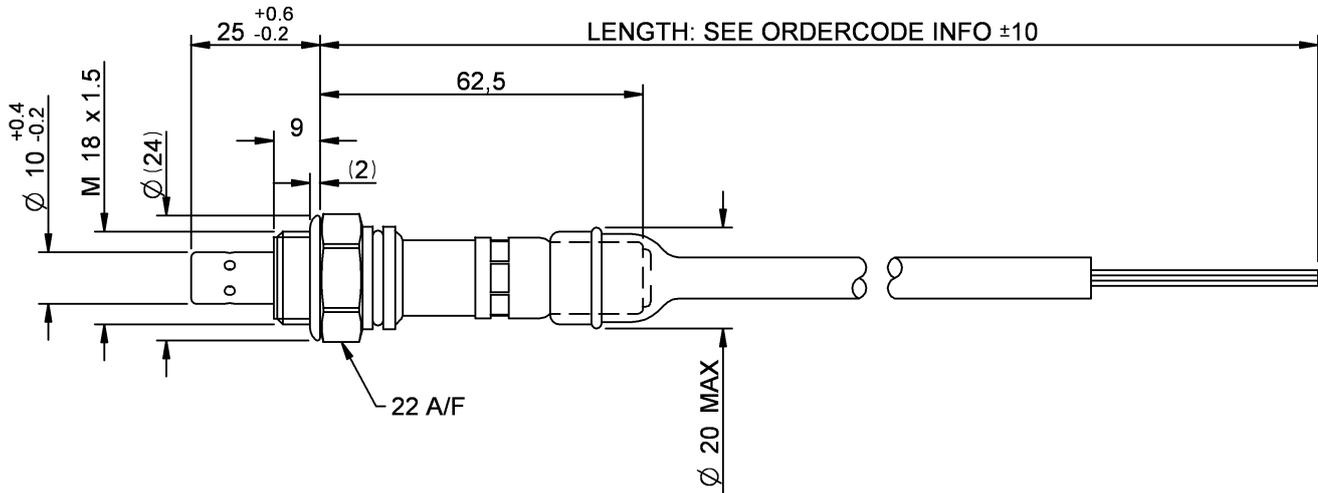
Orange wire	Pin A	Heater supply +
Yellow wire	Pin B	Heater supply -
White wire	Pin C	Pumping current +
Black wire	Pin D	Pumping current -
Red wire	Pin E	Cell supply +

Environmental

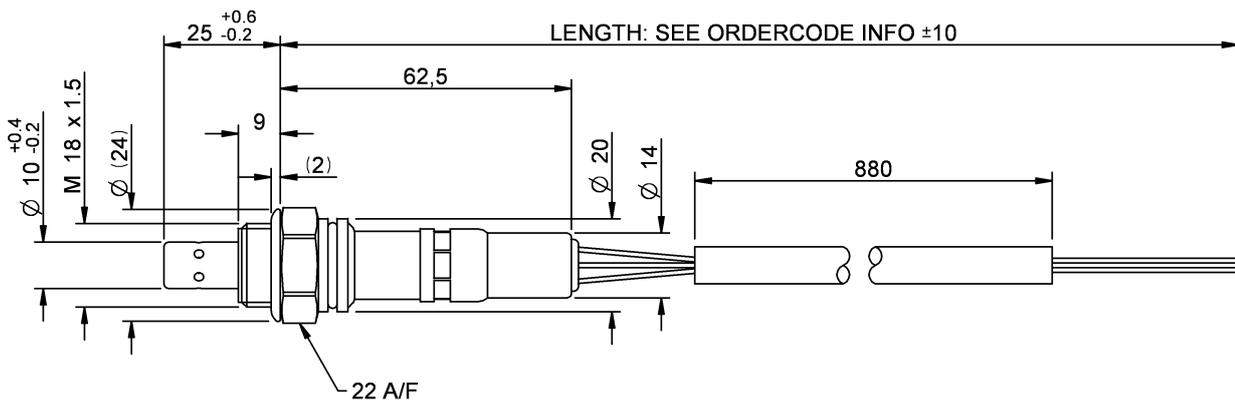
- Calibration interval 500hrs
- Resistant to standard motorsport fluids
- Average humidity 5 to 10% absolute volume
- Gas temperature 25 to 800°C
- Operating temperature (the heater must be operating correctly to ensure accurate readings)

Sensor tip	700 to 900°C
Body at mounting hex	<550°C
Body at cable outlet	<200°C
- Rate of temperature change must not exceed 50K/s
- Temperature shocks must be avoided
- Cable jacket material shown on the order details
- Vibration 200Hz @ 20g 10hrs

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Cable Length	Sleeve	Order Code
430mm	Viton and Nomex	O 030 360 000 009
430mm	Viton only	O 030 360 000 010
430mm	Nomex only	O 030 360 000 012
Accessories	Soft washer	O 030 360 990 000



Cable Length	Sleeve	Order Code
1050mm	Glass fibre (no boot)	O 030 360 000 004
Accessories	Soft washer	O 030 360 990 000