Oxygen CiTiceL® Specification

T7OX 4-20mA Transmitter

Performance Characteristics

Sensor Type Used	7OX
Range	0-25% Oxygen
Expected Operating Life	Two years in air
Resolution	0.1%
Temperature Range	-20°C to +50°C
Pressure Range	Atmospheric ± 10%
Pressure Coefficient	0.02% signal/mBar
T_{95} Response Time	≤15 seconds
Relative Humidity Range	0 to 99% non-condensing
Long Term Output Drift	<5% signal loss/year

Electrical Characteristics

Output	4-20mA d.c.
Power Supply Required	10 to 35V d.c.
Calibration	Via built-in span potentiometer
Output Impedance	15MΩ

Physical Characteristics

Weight	approx. 120g
Position Sensitivity	None
Storage Life	Six months in CTL container
Recommended Storage Temperature	0-20°C
Warranty Period	24 months from date of despatch (This amounts to a variation of condition 6 of our standard terms and conditions which otherwise apply)

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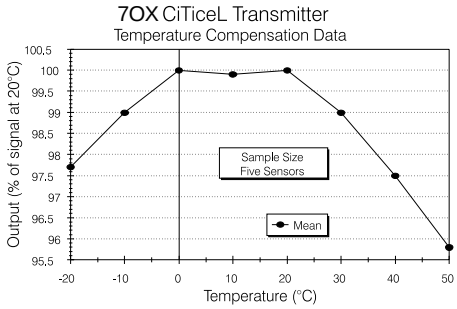
Temperature Behaviour

1) Gradual changes

Oxygen 4-20mA Transmitters are compensated to minimise the variation in output with gradual changes in temperature. The mean compensated output of a batch of transmitters at a number of temperatures is shown below, expressed as a percentage of the signal at 20°C.



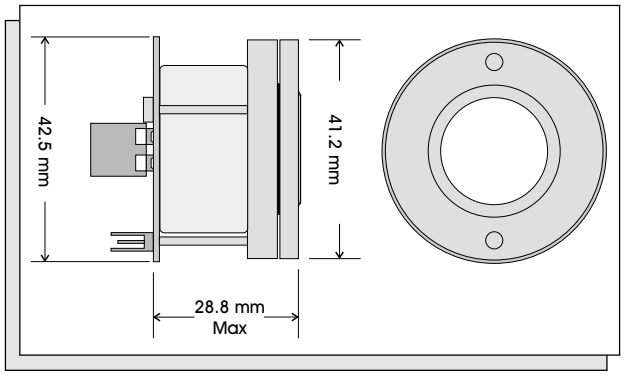
2) Sharp fluctuations

A transient response will occur with sharp fluctuations in temperature. For rapid increases in temperature there is a sharp drop in sensor output, and a sharp increase in output for rapid decreases. These responses are transient and should die away in about 20 seconds.

Mounting

A diffusion mounting assembly, the "nose" adaptor, is supplied with CiTiceL transmitters for convenient mounting in a wide range of weatherproof housings. It also features a plug for easy zeroing and exposure to calibration gas and a bonded membrane and mesh to prevent dirt and dust particles reaching the sensor.

The assembly is included in the diagram below.



Linearity

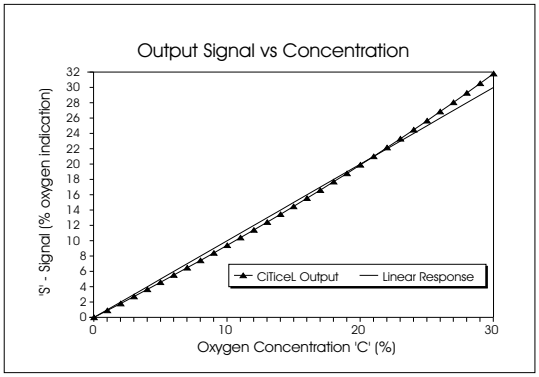
The output signal of an Oxygen CiTiceL follows the relationship:

$$S = K \log_e 1/(1-C)$$

where:

S = Output signal;
C = Fractional oxygen concentration;
K = a constant for the sensor.

For most applications the deviation from a linear response will be insignificant, and no compensation needed. For example, the graph below shows the output of a sensor calibrated in air (20.9% O_2). In this case the maximum error in the 0-25% range is ≈0.5% at around 10% O_2.



City Technology Ltd, City Technology Centre, Walton Rd, Portsmouth PO6 1SZ, UK
Tel:+44 23 9232 5511, Fax:+44 23 9238 6611, sensors@citytech.co.uk, www.citytech.com