

Oxygen CiTiceL<sup>®</sup> Specification

## T7OX-V 4-20mA Transmitter

**Performance Characteristics**

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

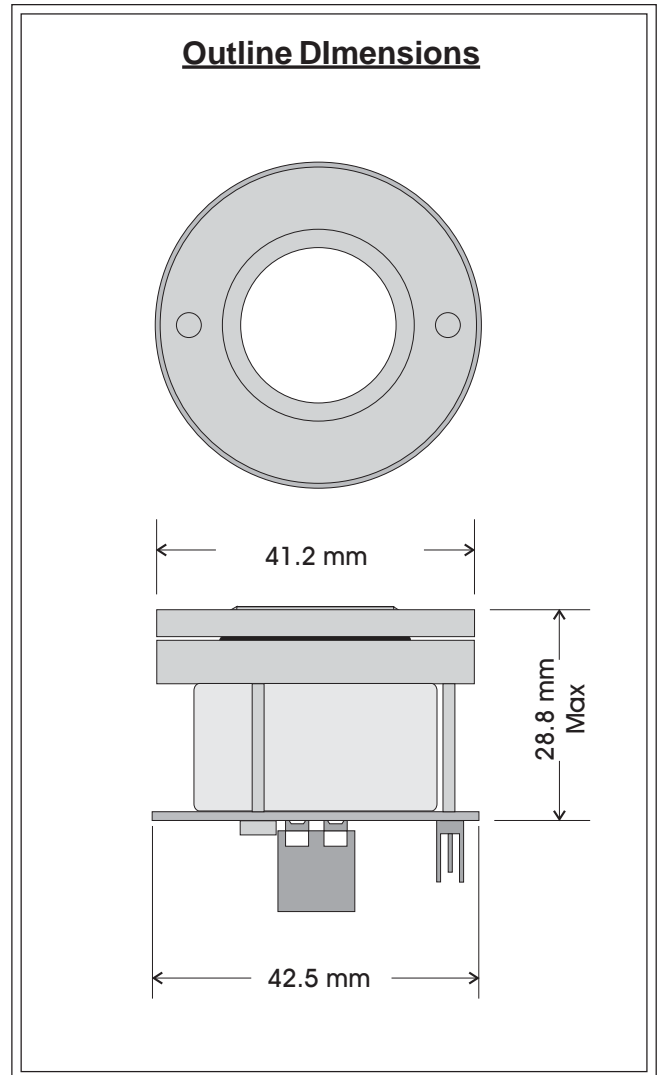
N.B. All performance data is based on conditions at 20°C, 50%RH, and 1013mBar

**Electrical Characteristics**

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

**Physical Characteristics**

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

**Outline Dimensions**

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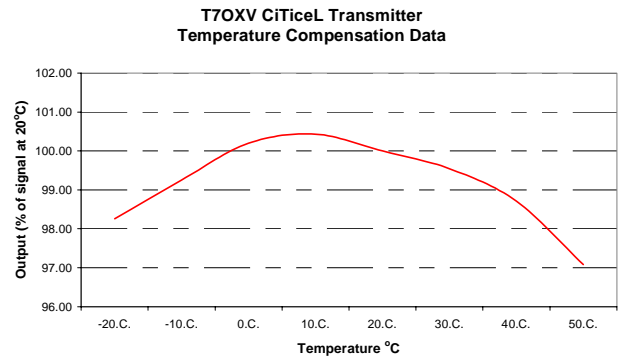
## Temperature Behaviour

### 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 to the right, 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.



## Linearity

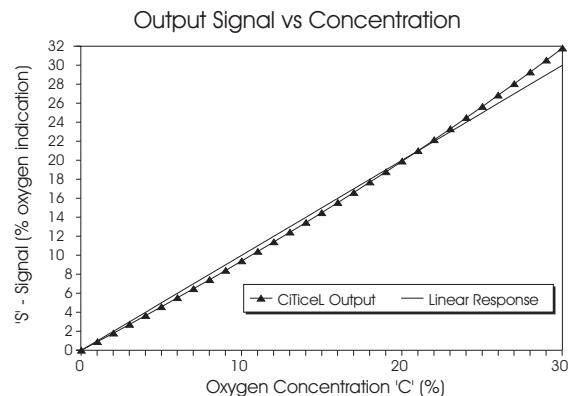
The output signal of an Oxygen CiTiceL follows the relationship:

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

where:

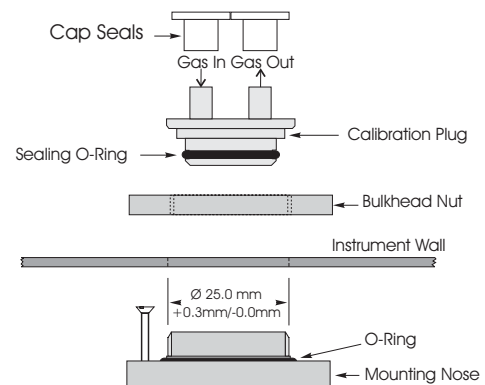
- S = Output signal;
- C = Fractional oxygen concentration;
- K = a constant for the sensor.

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<sub>2</sub>). In this case the maximum error in the 0-25% range is »0.5% at around 10% O<sub>2</sub>.



## 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.



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Performance characteristics on this data sheet outline the performance of newly supplied sensors. Output signal can drift below the lower limit over time.