

TECHNICAL NOTE:

Electrochemical Ozone Sensor (EOZ)

In response to requests for an ozone sensor with a wide range and fast speed of response, Aeroqual has introduced an electrochemical ozone sensor head for use with handheld and fixed monitors.

The EOZ utilizes a Kalman filter to achieve a fast speed of response (4s update) with good accuracy across a wide range (0-10ppm). This makes it complementary to our gas sensitive semiconductor (GSS) sensors which offer unparalleled accuracy, sensitivity and stability at low ozone concentrations.

The sensor has the following specifications:

Gas Sensor	Code	Sensor ¹	Range (ppm)	Minimum Detection Limit (ppm)	Accuracy of Calibration	Operating Life	T90	Resolution (ppm)	Operational Range ²	
									Temp.	RH
Sensor Heads Compatible with S200, 300, 500, 900 & 930 Only										
Ozone (O ₃)	EOZ	GSE	0-10	0.01	<±(0.01 ppm + 7.5% of reading)	24 months	<60s	0.001	0 to 40°C	15 to 90%

Application

The EOZ sensor is less affected by VOC cross-interferences than the GSS sensors, but it is sensitive to NO₂ and Cl₂. Therefore the EOZ is best suited to indoor and industrial applications while less suited to ambient outdoor applications.

The high accuracy makes it a good choice for health and safety monitoring. The speed of response and wide range make it the sensible option for leak detection.

Applications include ozone generator control and/or leak detection in mechanical rooms, leak detection in laundry, industrial health and safety monitoring and many more.

Where greater accuracy is required below 0.1ppm, customers should use the GSS sensor head options – either OZL or OZU.

Operation

Unlike GSS sensors, electrochemical sensors do not have automatic baseline compensation which means they will have to be manually re-zeroed from time to time.

The required zero calibration frequency depends on the use of the instrument. If it is used to measure close to zero it will need to be zeroed more frequently than if used at higher concentrations.

There are two approaches to zero calibration – a high accuracy approach which does require zero air, and a more convenient re-zero in a low ozone environment (where known ozone level is <0.01ppm).

Operating Life

Electrochemical sensors start to degrade from the moment they are taken out of their protective packaging. This means that operating life begins from the date of manufacture. Electrochemical sensors will degrade even when on the shelf.

As with our GSS ozone sensor we offer a 12 month warranty on the EOZ, with the warranty period starting from the date of purchase.

Cross-Sensitivity

The EOZ sensor has the following cross-sensitivities:

H2S sensitivity	% measured gas @ 20ppm	H2S	< -40
NO2 sensitivity	% measured gas @ 10ppm	NO2	100
NO sensitivity	% measured gas @ 50ppm	NO	< 0.5
SO2 sensitivity	% measured gas @ 20ppm	SO2	< -2.5
CO sensitivity	% measured gas @ 400ppm	CO	< 0.1
H2 sensitivity	% measured gas @ 400ppm	H2	< 0.1
C2H4 sensitivity	% measured gas @ 400ppm	C2H4	< 0.1
Cl2 sensitivity	% measured gas @ 10ppm	Cl2	100