Oxigraf Case Study:
Linear Acceleration Tunnel Oxygen Deficiency Sensor

Model O2iM – Oxygen Deficiency Safety Monitor:

The Oxigraf state of the art Oxygen Deficiency Monitor, the Model O2iM, is a fast response, accurate and reliable safety monitor for oxygen displacement monitoring in laboratory, MRI, NMR, and liquid nitrogen and helium storage facilities. Our reliable solid state sensor does not require routine maintenance or factory calibration, and the O2iM is equipped with an automatic/programmable auto-calibration system. The system easily interfaces with alarm system, HVAC controls, and building management systems.

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The Oxigraf team recently worked with a client to provide them with a reliable, high-quality linear acceleration tunnel oxygen deficiency sensor. A detailed case study is outlined below.

The Problem:

A customer was in need of a reliable solution for sampling gas from remote locations in a tunnel in order to monitor equipment and personnel safety. During their operations, they were dealing with radiation hazards, which posed risks for electronics, and during maintenance periods, they were dealing with the presence of cryogenic nitrogen and helium, which presented oxygen deficiency hazards. Oxygen deficiency in the workplace can lead to blackouts, cause falls, and present more serious health risks — some of which can be fatal. The Oxigraf team was brought in to help them eliminate the risk of oxygen depletion.

The Solution:

After assessing the clients' unique needs, we opted to provide them with our Oxigraf Model O2iM, which has a high-flow pump option and allows for sampling from long distances. This sensor allows for continual monitoring of the clients' tunnel atmosphere from a safe location, and provides local alarms and interfaces with sophisticated safety features to prevent hazards such as cryogenic spills, which can lead to rapid displacement of breathing air. Oxigraf's top-of-the-line oxygen deficiency monitor is flexible and efficient, and provided the client with a reliable, immediate oxygen alarm for concentrations of less than 19.5%. It also eliminated the need for frequent recalibration or replacement of oxygen sensors, as well as the comprehensive, time-consuming maintenance often involved in sampling systems. The risk of false alarms and alarm failures was also eliminated.

This unique sensor features a rapid response time of less than a second. The built-in pump draws gas remotely, allowing for these quick response times. In fact, we offer the best response speed/signal in the industry, and can add multiplexors (valving) in order to monitor four or more locations from over 100 feet away.

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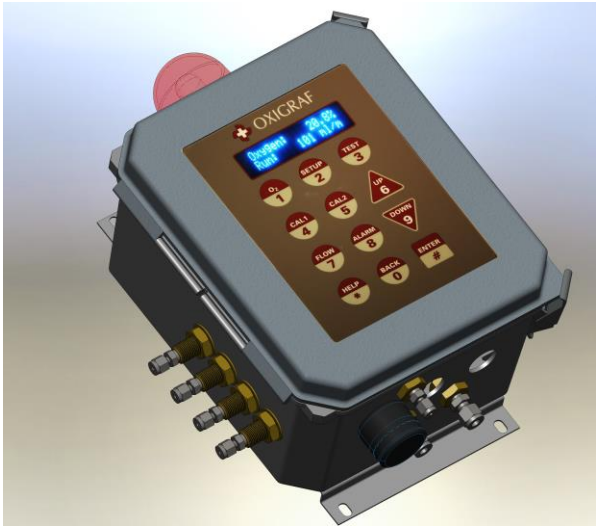
The transit time of the gas sample through the sampling tube may be 1 second per meter of sampling tube with our standard pump or using our high flow option, a much faster response is possible on long tubing lengths. The high flow pump operates at a much faster rate and pre-fetches samples.

Additionally, this sensor is insensitive to movement, temperature and pressure changes, has auto-calibration for absolute accuracy, and includes options for multi-port and high-flow sampling. It also features a remote display and optional battery backup to allow for proper functioning during power interruptions. In addition, it can be fitted with a Z-Purge system, which allows the unit to be used in Class 1 Div 2 hazardous areas. The monitor includes a sampling pump, hydrophobic filter, and flow sensor, while the microprocessor controller maintains the flow at a constant value.



The Result:

The customer compared our O2iM sensor to other O2 sensing solutions and determined that O2iM was “the champion,” allowing for reliable performance 24/7. They were especially impressed with the unique engineering of the “Pre-Fetch” high-flow pump option, which allows for the monitoring of distant sample locations while maintaining fast response times.

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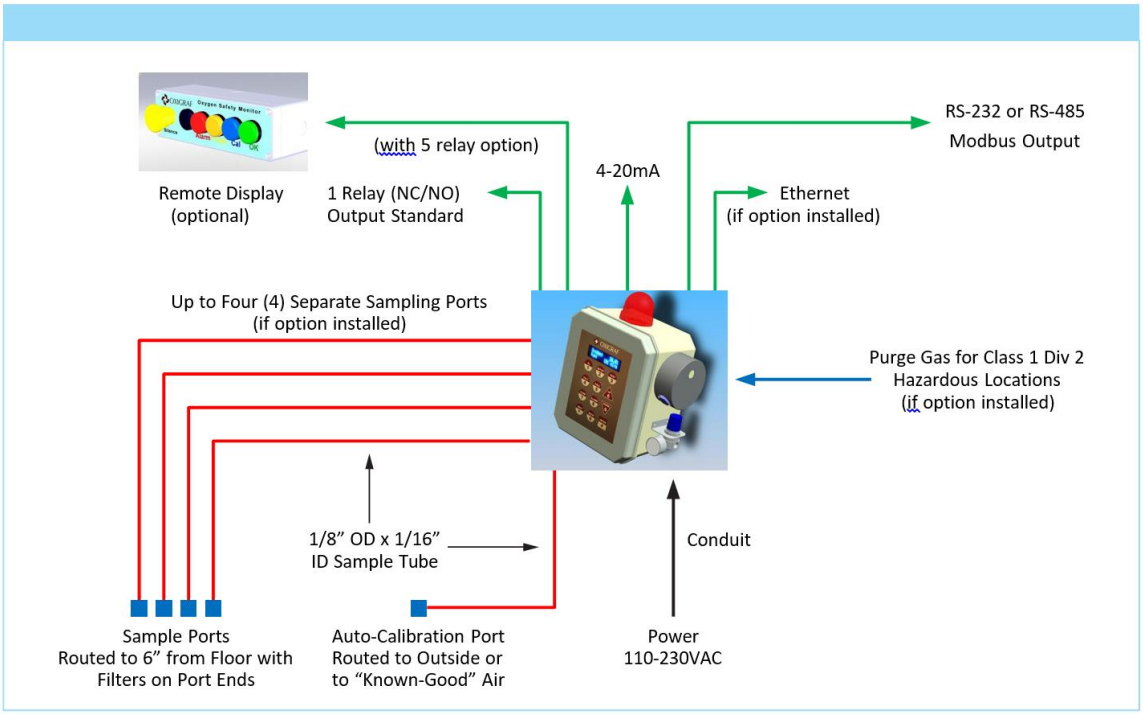
Typical O2iM Installation:



Learn More:

Oxigraf has over 20 years of experience producing laser gas sensors and instruments, and is the leading manufacturer of laser absorption spectroscopy sensors for oxygen gas measurement and analysis. Oxigraf O2iM Oxygen Safety Monitors have been widely adapted in hundreds of facilities since 2004, replacing a wide range of less reliable electrochemical sensors. Oxigraf O2 and CO2 sensors, in particular, have been widely adapted by OEM manufacturers of medical respiratory gas monitors in order to measure breath waveforms, end-tidal gas values, anaerobic thresholds, VO2 max, and non-invasive cardiac outputs. For more information on our sensors, or to speak with an expert about your specific monitoring needs, contact the team today.

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