

Oxygen Level Monitoring In Laboratories

The Issue:

Many Laboratories store and use quantities of Inert Gases. Gases such as Helium and Argon are used for a variety of purposes for example to purge Oxygen and provide a stable inert atmosphere within a glovebox. Liquid Nitrogen is also commonly used to provide temperatures as low as -196°C for use in applications such as cryobiology and cryogenic storage. The presence of these Inert Gases and Liquid Nitrogen requires a focus on health and safety as they can rapidly displace the Oxygen in the air if they escape and may kill by asphyxiation as a result. When the Oxygen concentration in air is sufficiently low, a person can become unconscious without warning.

The Solution

The **Riken Keiki Model OX-600**, Stand Alone Oxygen Monitor, from **Weatherall** can monitor Laboratories and gas storage rooms for Oxygen Deficiency as well as Oxygen Enrichment conditions.

The **OX-600** detects Oxygen in a range of 0-25% volume with 0.1% increments. Its alarms can be set to low-low or low-high settings meaning as well as Oxygen Deficiency, it can also be used to monitor Oxygen Enrichment which could become a combustion threat if reactive compounds are being handled. In addition the 24VDC Version has relay outputs for 1st and 2nd alarms and a 4-20mA output.

The **OX-600** is compact and lightweight (weighing only 180g without batteries) and is equipped with a unique three-colour display which changes colour as oxygen levels reach each alarm setting. It also displays the actual Oxygen levels on screen, a feature which is increasingly sought after by many health and safety inspectors.

The **OX-600** uses a fast responding low-cost plug-in style galvanic cell sensor. This long life sensor is field-replaceable with no special tools required. The **OX-600** also includes pressure compensation to avoid false alarms caused by variations in atmospheric pressure. It comes ready to operate with a simple wall mounted bracket and is very easy to install. It has either 24VDC (optional mains adapter available) or battery powered options (2 x separate AA Alkaline batteries included).



O2 Concentration
21%

Symptoms
 Natural air



O2 Concentration
18%

Symptoms
 Limit level for not causing serious health problems. Continuous ventilation is required



O2 Concentration
16%-12%

Symptoms
 Rapid breathing, Increase in pulse rate, Loss of concentration, Headache, Nausea, Ear ringing



O2 Concentration
14%-9%

Symptoms
 Stupor, Headache, Nausea, Cyanosis, Faintness on the entire body



O2 Concentration
10%-6%

Symptoms
 Comatose, Loss of consciousness, Muscle spasm on the entire body



O2 Concentration
6% or less

Symptoms
 Unconsciousness, Comatose, Cessation of breathing, Cardiac arrest, Die in 6 minutes

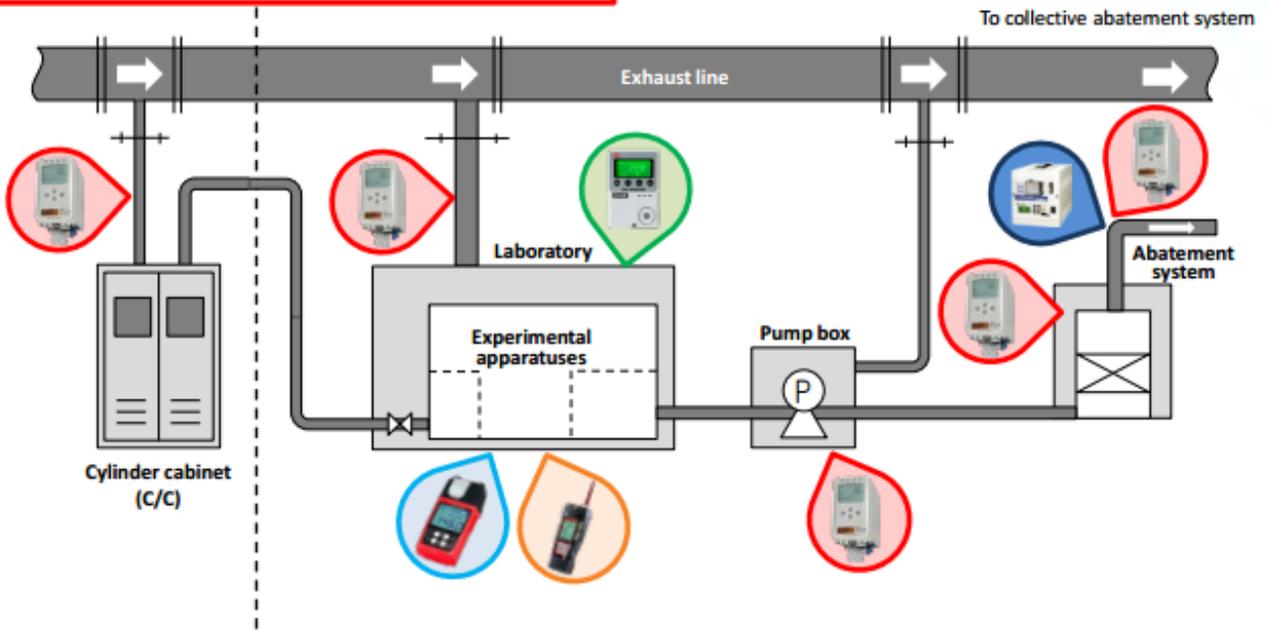


An optional remote mounted sensor and cable (3-20 meter options) allows the monitor unit to be mounted outside of the Laboratory or Gas Storage Room, while the extender cable allows the sensor to be located inside. This allows the condition of a room to be checked prior to entering.

Being aware of oxygen deficiency in the presence of compressed inert gas cylinders or liquid inert gas containers can save lives.

Additional Riken Keiki Gas Leak Detection Solutions in Laboratories

Example of system configuration



Intelligent Gas Detector
[Model:GD-70D]



Indoor Oxygen Monitor
[Model:OX-600]



Formaldehyde Gas Detector
[Model:FP-31]



Highly Sensitive Toxic Gas Monitor
[Model:FP-300]



Portable Multi Gas Detector
[Model:GX-6000]
(Capable of detecting VOC)