

## MODEL 221R



The Model 221R has become the standard oxygen deficiency monitor throughout the US market. It is used by the thousands in government labs, universities, and industry, anywhere there is a possibility of asphyxiation due to leakage of compressed or liquefied inert gases like nitrogen, argon or carbon dioxide.

- Waterproof enclosure may be washed down
- Provides a warning alarm at 20.0% and a danger alarm at 19.5% (per OSHA standards).
- Alarm set points set per OSHA standards
- 10 year expected sensor life
- No nuisance alarms caused by sensor drift
- Virtually unaffected by barometric pressure change
- Virtually unaffected by temperature change
- Battery backed up against power failure
- 95dBA danger warning audible alarm
- Red backlit oxygen display
- Case can be padlocked
- Remote indication of readings and alarms
- Optional remote oxygen probe available
- UL 61010-1 approved and CE Marked for European use.

It has become the standard because it is extremely reliable, does not drift even with extreme temperature swings or barometric pressure changes and does not generate false alarms but responds very rapidly to real oxygen emergencies.

Competitive monitors that use conventional electrochemical sensors suffer from serious false alarms issues. Electrochemical sensors lose sensitivity over time – requiring monthly calibration - and typically after about a year need to be replaced. These sensors suffer from pressure and temperature sensitivities that cause them to drift into alarm when weather patterns change or even when air conditioning systems cycle, even though the actual oxygen level is safe.

The model 221R offers a number of compelling features that make integration into building or plant alarm systems easy.

It provides two alarm relays, operating in fail-safe mode that provide up to 110V at 5A switching capability. They respond to the standard OSHA alarm levels of 20.0% warning, 19.5% danger, and they also respond to a 23.5% over-enrichment situation.

The front panel status LED changes color when an alarm occurs, and when a danger alarm occurs the built-in audible alert sounds. This alarm can be temporarily silenced.

It can be calibrated using a known clean air sample, but it only needs calibration bi-annually, and then mainly in order to verify its calibration.

It provides an isolated 4-20mA output corresponding to the oxygen reading that can be monitored by an analog control panel.

It provides a bi-directional RS-485 communication system that can monitor all the internal parameters and even download a data log of readings over the previous fifteen days.

It can be mounted on a wall, and hosed down. It is available with a remotely mounted oxygen probe, so that the display and alarm can be seen outside a room while the air within the room is monitored, so personnel may be kept out when conditions are dangerous.

It contains enough batteries to allow it to continue operating up to an hour after power failure, and it will indicate an alarm for a period before the batteries completely die.

Finally – we use a number of these in our own plant in places where we keep liquid nitrogen Dewars.

# FEATURES

- 0-25% Measurement range
- Large 3 ½ digit Red Backlit digital display
- 2 oxygen concentration alarms. Preset for OSHA standards 20.0% Caution and 19.5% Danger.
- Danger alarm if oxygen exceeds 23.5%
- Status LED
- 95dBA danger alarm preset for 19.5% and 23.5%
- **Customer selectable security lockout feature\***
- **Customer configurable alarm logic\***
- **Data logger\***
- Battery back-up
- Isolated 4-20mA analog output signal
- RS-485 bi-directional communications
- Unmatched stability and repeatability
- RFI protected
- Wide operating temperature range
- 10 year life expectancy zirconium oxide sensor
- Weather tight NEMA 4X package
- Optional remote oxygen sensing probe. Can be located up to 300' away from control unit
- Gas connection: Diffusion screen. No pump, sample tubing or fittings required
- Compact size

**\*These features require the use of the AMI User Interface software**

# SPECIFICATIONS

- Measurement range: 0- 25%.
- Red Backlit Digital display: 3 ½ digit LCD. Reads full scale from 00.0% to 25.0%.
- Alarms: 2 preset oxygen concentration alarms. Preset for OSHA standards <20.0% Caution , <19.5% and >23.5% Danger. Dry contacts 3A. @24VDC/115VAC.
- Status LED: indicates Power, Safe Operation, Alarm Conditions and Loss of AC power.
- Danger alarm: 95dBA danger alarm preset for 19.5% and 23.5%.
- Battery back-up: 1 hour.
- Analog output signal: Isolated 4-20mA.
- Data logger: Logs data for 10 days @ 1 minute intervals, 20 days @ 2 minute intervals, etc.
- Communications: RS-485 bi-directional.
- Power requirements: 100-240VAC < 15 watts.
- Minimum detection: 0.05% of oxygen.
- Repeatability: +/- 0.1% of range or +/- 0.1% of oxygen, whichever is greater.
- Operating temperature range: 0°F to 130°F.
- Diurnal temperature specification: < +/- 1 % of scale over temperature range.
- 90% full scale response times for specified range: 0-25% <12 seconds.
- Long life zirconium oxide sensor: 10 year life expectancy , 2 year warranty.
- Area Classification: Approved to meet General Purpose UL 61010-1 standard and IP 65 requirements. CE Marked.
- Gas connection: Diffusion screen. No pump or fittings required.
- Mounting: Wall mount or 2.0" pipe mount.
- Dimensions: 7.0"W x 5.7"H x 4.5"D.
- Weight: 4 lbs.