

## Oxygen Probe Troubleshooting Guide

### “My detector is reading a high O2 level”:

#### 1) The measuring gas pressure becomes higher:

When the process pressure increases the oxygen reading will be higher. Certain steps should be taken to ensure a proper measurement.

- ▶ Can improvement in facility be made so that pressure change does not occur?
- ▶ Can the probe be calibrated at process pressure?
- ▶ Change the Oxygen Probe to a Pressure compensating model

#### 2) Moisture content in a reference gas changes (increases) greatly:

If ambient air at the detector installation site is used for the reference gas (convection sourced), a large change of moisture in the air may cause an error in measured oxygen concentration value (vol% O<sub>2</sub>). When this is the case, use a gas in which moisture content is constant such as a clean dry instrument air or a bottled gas source such as a 21% O<sub>2</sub> balanced in Nitrogen.

#### 3) Calibration gas (span gas) is mixing into the cell due to leakage:

If the span gas is mixing into the cell due to leakage as a result of failure of the valve in the calibration gas tubing system, the measured value shows a value higher than normal. Check valves (needle valves, check valves, solenoid valves for automatic calibration, etc.) in the calibration gas tubing system for leakage. For manual valves, check them after confirming that they are in fully closed states. In addition, check the tubing joints for leakage.

#### 4) The reference gas is mixing into the process gas and vice versa:

Since the difference between oxygen partial pressures on the cell anode and cathode sides becomes smaller, the measured value shows a higher value. Process gas and/or the reference gas may be leaking. Visually inspect the cell. If any crack is found, replace the cell assembly with a new one.

### “My detector is reading a low O2 level”:

#### 1) The measuring gas pressure becomes lower.

When the process pressure decreases, the oxygen reading will be lower. Certain steps should be taken to ensure a proper measurement.

- ▶ Can improvement in facility be made so that pressure change does not occur?
- ▶ Can the probe be calibrated at process pressure?
- ▶ Change the Oxygen Probe to a Pressure compensating model

**2) Moisture content in a reference gas changes (decreases) greatly.**

If ambient air at the detector installation site is used for the reference gas (convection sourced), a large change of moisture in the air may cause an error in measured oxygen concentration value (vol% O<sub>2</sub>). When this is the case, use a gas in which moisture content is constant such as a clean dry instrument air or a bottled gas source such as a 21% O<sub>2</sub> balanced in Nitrogen.

**3) Calibration gas (zero gas) is mixed into the cell due to leakage.**

If the zero gas is mixed into the detector due to leakage as a result of failure of the valve provided in the calibration gas tubing system, the measured value shows a value lower than normal. Check valves (needle valves, check valves, solenoid valves for automatic calibration, etc.) in the calibration gas tubing system for leakage. For manual valves, check them after confirming that they are in fully closed states.

**4) Combustible components exist in the measured gas.**

Clogging at the cell can occur if residual combustibles are present (carbon build up). If combustible components exist in the measured gas, they burn in the cell and thus oxygen concentration decreases. Remove the probe and clean the cell. Check that there are no combustible components.

**Other abnormal values and causes****1) Noise may be mixing in with the converter from the detector output wiring.**

Check whether the equipment is securely grounded.  
Check whether or not the signal wiring is laid along heater cables or other power cords.

**2) The converter may be affected by noise from the power supply.**

Check whether or not the converter power is supplied from the same outlet, switch, or breaker as other power machines and equipment.