QUANTEK INSTRUMENTS

Oxygen and Carbon Dioxide Analyzers



MODEL 902D OPERATING INSTRUCTIONS

GENERAL DESCRIPTION

The Quantek Model 902D is a portable oxygen/carbon dioxide analyser used for the measurement of O2 and CO2 in gas-flushed (CAP/MAP) food packages. The Model 902D design has proven itself in hundreds of installations for food applications such as meats, fresh produce, pasta, nuts, snackfoods, dairy products and coffee. The sensor is unaffected by trace hydrocarbons or other background gases.

Components which make up the Model 902D include the case, oxygen sensor, LCD readout, internal sampling pump, two circuit boards, AC adapter module and sampling probe. The sample probe is tipped with a particulate filter and luer fit syringe needle with side-port holes to prevent plugging.
Sample is drawn through the probe and tubing and then simultaneously to the oxygen and CO2 sensors when the pump is turned on. The pump is electronically timed to draw in sample required for the analysis, and then turns itself off after the pre-set sampling time, which is adjustable from 1 to 10 seconds.

The oxygen and carbon dioxide concentrations are read on the display.

The operating controls and adjustments include power switch, pump switch, span, zero and pump time adjustments.

PRECAUTIONS

Follow these guidelines to prevent damage to the unit – the top two warnings account for most repairs:

1. Do not suck liquids into the unit through the needle. Use the PTFE filters supplied with the accessory pack – they will block particulates *and* liquids. Contamination of the sensor(s) accounts for 70% of repairs.

2. Do not immerse in water or spray water on the unit

3. Store in a clean, dry place at the end of the day – cleaning chemicals commonly used in food production facilities can corrode the circuitry

OPERATION

1. Plug in the power adapter. Press the POWER switch to start unit. The meter reading at this point will not be stable. Let the unit warm up. The O2 channel requires no warm-up time, but the CO2 channel needs 60 seconds for the infrared sensor to stabilize.

2. Press the PUMP switch. The pump will come on for approximately 4 to 6 seconds and pull room air into the analyser. Note that the O2 meter reading will decrease slightly when the pump is on. This is normal due to the slight vacuum created in the sensor when the pump is running. The CO2 meter should read 0.1 to 0.5 % when checking room air. Wait approximately 10-12 seconds for the reading to stabilize. Room air should give a reading of 20.7 to 21.1 % oxygen, and 0 to 0.2% CO2.

3. To sample food packs, first attach the sample probe (new units have this factory installed) to the fitting on the front panel of the analyser. The fitting should be finger tightened only, but it should be tight to prevent leaks when sampling. Insert a particulate filter on the end of the probe, and then insert a needle onto the end of the filter. Pierce the food pack with the syringe needle through a foam rubber seal (supplied).



4. Depress the PUMP switch and wait for the reading to stabilise (10-15 seconds). Leave the needle in the food pack until the reading is stable. This is your reading. If sampling packs with high levels of CO2, the reading may take longer to stabilise.

AIR CALIBRATION ADJUSTMENTS

These adjustments are made using the potentiometers located on the back panel of the unit.

CALIBRATION SETTING – OXYGEN

Accurate calibration of the O2 reading can be checked at any time by sampling room air, which should give a reading of 20.9% oxygen, plus or minus 0.2%. If the reading is off, it can be set by adjusting the **O2 SPAN** potentiometer, with the screwdriver supplied with the unit.

CALIBRATION SETTING – CO2

Likewise, the CO2 calibration can be adjusted in air as required by turning the **CO2 SPAN** potentiometer located on the back of the unit.

GENERAL TROUBLESHOOTING

For most problems that arise, the oxygen sensor will provide the best clues as to what has gone wrong. For example, if the sample probe is unobstructed (i.e. no needle or filter is installed), and you press the pump button, you will see the oxygen reading drop to about 1820% and then rise back toward ambient (20.9%).
If you conduct this same test with a needle on the end of the probe, and the needle is clogged, you may see the oxygen reading drop down to 13% and slowly rise back to ambient (20.9%).

Since oxygen will read 20.9% at room air, watching the oxygen reading is the best way to troubleshoot.