INSTRUCTION MANUAL
TED 120 OXYGEN MONITOR

INTRODUCTION

The Model TED 120, provides continuous and specific monitoring of oxygen. It is designed to monitor oxygen in respirators, incubators and in other medical equipment.

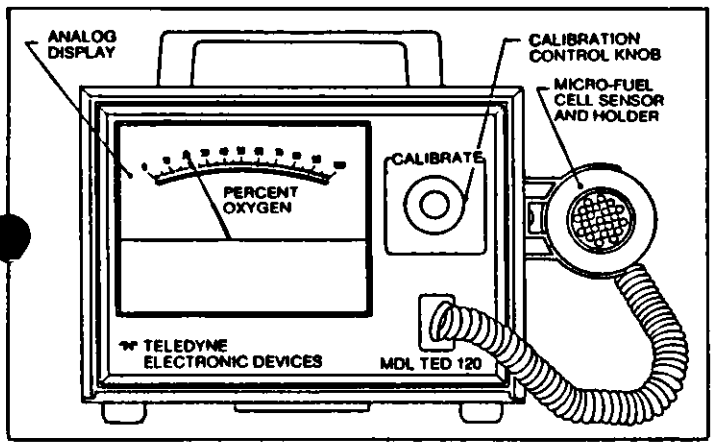
MAIN FEATURES

Compact and Lightweight. The TED 120 Oxygen (O_2) Analyzer is a simple, lightweight unit equipped with an easy-to-read analog meter with 1% O_2 gradations. Its rugged aluminum case is designed to withstand abuse. And, the sensor holder - with 12 foot (3.6 meter) coiled cable - plugs into the TED 120, making the sensor convenient to mount in a variety of applications.

Maintenance-free Micro-fuel Cell O_2 Sensor. The TED 120 utilizes the Teledyne patented Micro-fuel Cell O_2 sensor specifically designed for medical applications. The sensor is a maintenance-free device that requires only a simple periodic calibration to assure reliable and accurate performance. At the end of its life, the sensor is easily removed from its holder and disposed of like a common flashlight battery. There are no electrolytes or membranes to change. And, the low-cost sensor has an excellent shelf life that makes it practical to keep spares on hand.

Analog Meter Display. An analog meter display provides a clear, easily readable indication of the percent O_2 content in the gas being monitored. Since the meter is driven directly by the electrical signal generated by the Micro-fuel Cell O_2 sensor, the TED 120 requires no batteries! Likewise, no on/off switch is needed.

Sensor Holder. The TED 120 also features a corrosion-resistant, sterilizable sensor holder which contains the O_2 sensor. The sensor holder is easily plugged into the TED 120 via a coiled cable, allowing convenient mounting of the sensor.



Model TED 120 Oxygen Analyzer

SENSOR INSTALLATION

Note: The Micro-fuel Cell O_2 sensor must be installed in the sensor holder before the TED 120 can be operated.

Procedure:

1. Remove the Micro-fuel Cell from its barrier bag. Carefully and correctly pull off the shorting clip. **CAUTION:** Do not scratch, puncture or otherwise damage the Micro-fuel Cell membrane. Damage to he membrane may require sensor replacement.
2. Unscrew the holder cap from the sensor holder as shown in Figure 1.
3. Place the Micro-fuel Cell in the sensor holder, as shown. Make certain that the cell membrane faces toward the cap.
4. Screw the holder cap back onto the sensor holder.
5. Be sure the sensor holder's coiled cable is plugged into your TED 120. Proceed with "Operating Instructions."

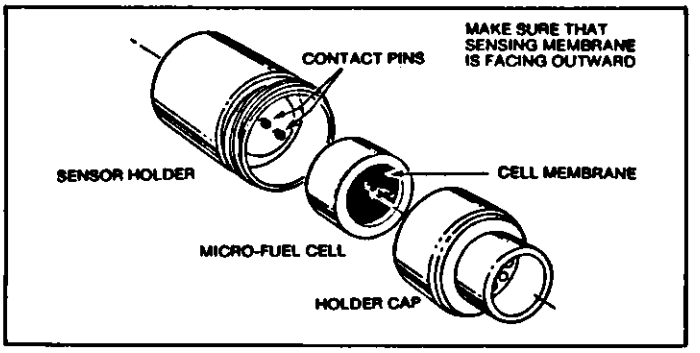


Figure 1. Installing Cell in Holder

OPERATING INSTRUCTIONS

1. Be sure that the Micro-fuel Cell sensor is properly installed in your sensor holder.
2. Connect the plug from the sensor holder cable into its receptacle on the front panel of the TED 120.
3. Expose the sensor holder to air (20.9% O_2). Adjust the CALIBRATE control until the meter needle coincides with the calibration mark. Note: For optimum accuracy, calibrate with 100% O_2. Set meter to read 100%.
4. The TED 120 is now ready for use.

PRECAUTIONS

1. Do not press on the sensing membrane of the Micro-fuel Cell sensor. Scratching, puncturing or other damage to the membrane will require replacement of the sensor.
2. Do not autoclave or gas sterilize any part of the TED 120. Refer to "Disinfecting and Sterilization" for recommended methods.
3. The TED 120 is not sensitive to RFI.
4. The T-1 sensor used in the TED 120 is not recommended for use in gas mixtures containing nitrous oxide (N_2O). Contact your local TED distributor for information describing the correct TED product for N_2O gas mixtures.
5. The T-1 sensor contains a caustic mixture, which is harmful if touched, inhaled, or swallowed. In case of eye contact, immediately flush eyes with water for at least 15 minutes. Call a physician. Material Safety Data Sheets (MSDS) are available from TED.

DISINFECTING AND STERILIZATION OF SENSOR AND SENSOR HOLDER

Caution: Do not autoclave or gas sterilize any part of the TED 120.

Solutions recommended for disinfecting the sensor, sensor holder and optional adapters are:

— SONACIDE, a potentiated acid glutaral-dehyde made by Ayerst Laboratories, Inc. OR

— CIDEX, an activated dialdehyde made by Arbrook, Inc.

Other commercially available solutions similar to these are acceptable for disinfecting.

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Directions for sterilization are plainly and simply described on each solution container. These directions should be followed explicitly.

Procedure Notes:

1. Disassemble the sensor holder during sterilization.
2. Whenever possible, overnight sterilization rather than heating is recommended.
3. Rinse the sensor/holder with water after sterilization.
4. After rinsing, use a soft absorbant tissue or swab to dry all wetted surfaces on the sensor and inside the holder.

CAUTION: The sensor, sensor holder and optional adapters are the only parts of the TED 120 that can be sterilized or disinfected.

INSTALLATION TIPS

— As with all oxygen sensors, excessive condensation on the cell membrane will block the diffusion of oxygen to the sensor. (If this should occur, carefully dry the membrane with a cotton swab or absorbant tissue, and continue using the sensor.) Mount the holder vertically, or no more than 45° from vertical. This helps prevent condensation build-up.

— A T-adapter is available for installing the sensor holder in breathing circuits. To install the holder on the T-adapter, screw or attach the appropriate optional accessory fitting into the holder cap. Then insert the holder, fitting end first, onto the T-adapter as shown in Figure 2. Note: A mounting clamp is available that allows easy mounting of the TED 120 conveniently near the sensor holder, in a number of desirable positions.

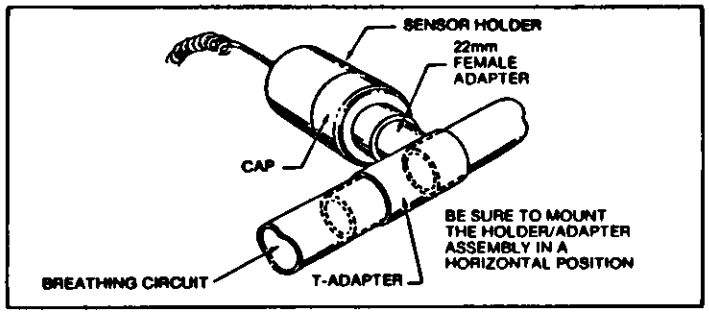

Figure 2. Mounting of Sensor Holder in T-adapter

EFFECTS OF PRESSURE AND HUMIDITY

The effect of pressure is a trait common to virtually all sensors in medical oxygen analyzers. Because sensors measure the partial pressure of oxygen, it is normal for them to respond to changes in total pressure. For example, a positive pressure cycle of 100 cm of water will produce a 10.6% change in the oxygen reading. For a 50% O_2 mixture, that means a positive pressure of 100 cm of water will result in a reading of 55.3% O_2.

Humidity does not affect the accuracy of the sensor's measurement. However, when a nebulizer or other device is used to increase moisture levels in gas mixtures, the moisture actually dilutes the mixture. This dilution effect decreases oxygen concentration. For example, if an 80% O_2 gas mixture is humidified to saturation, at room temperature the resulting gas mixture will contain only 77.5% O_2. Your TED Oxygen Analyzer accurately measures decreases in oxygen concentration due to the dilution effects of moisture added to gas mixtures.

OPTIONAL ACCESSORIES

Description	Part No.
T-Adapter (blue)	A181
T-Adapter, conductive (black)	A182
T-Adapter, Reusable (orange)	A274
Mounting Clamp	B34102

SPARE PARTS LIST

Description	Qty	Part No.
Micro-fuel Cell O_2 Sensor	1	A37016
Sensor Holder Assembly (includes coiled cable and connector plug)	1	B36817

SPECIFICATIONS

Range: 0-100% Oxygen

Accuracy: ±2% of full scale at constant temperature: ±5% of reading (worst case) over the operating temperature range

Operating Temperature Range: 32-104° F (0-40° C)

Storage Temperature Range: 32 to 122° F (0 to 50° C)

Response Time: 90% in less than 30 seconds at 77° F (25° C)

Power Requirements: none

Expected Sensor Life: 12 months

Sensor Type: T-1 Micro-fuel Cell (galvanic)

Dimensions: 5.8"H X 8.6"W X 3.0"D
(147 mm X 218 mm X 76 mm)

Net Weight: 1.9 lbs (0.86 kg)

WARRANTY

Teledyne warrants that the goods are free from defects of material and of construction for a period of two years from the date of shipment from Teledyne, except in the case of the Micro-Fuel Cell sensor, for which a one year warranty period applies. The liability of Teledyne, if any, shall be limited solely to the replacement and repair of the goods and shall not include shipping costs or other incidental damages as defined in Section 2-715 of the U.S. Uniform Commercial Code.

This Warranty is null and void if any goods are subjected to misuse, negligence, accident or repairs other than those performed by Teledyne or an authorized service center. eledyne or an authorized service center.

TELEDYNE ELECTRONIC DEVICES

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