

INSTRUCTION FOR GAS MIXING SYSTEM (GMS-5002)

DISCRIPTION

The Gas Mixing System's (GMS-5002) oxygen sensor, measures ambient oxygen partial pressure (ppO₂). An added pressure sensor enables the GMS-5002 to measure barometric pressure (mbar) and to convert the ppO₂ reading to an oxygen percentage (O₂%) as seen on the display. The GMS-5002 oxygen sensor is ppO₂ and temperature compensated, enabling accurate operation over a wide environmental range. The system is very stable and robust, does not contain hazardous materials and has negligible cross sensitivity to other gases (e.g. CO₂ and N₂).

BENEFITS

- *Easy to use
- *Long battery life
- *Can measure O₂ percent & barometric pressure (mbr)
- *Reliable
- *Accurate (O₂ range 0-25%)
- *Small & compact
- *Low cost
- *Maintenance free
- *Factory Calibrated

SPECIFICATION

- *Operating Temperature -30°C to +60°C
- *Storage Temperature -30°C to +60°C
- *Humidity 0-99% Rh (non-condensing)
- *Barometric Pressure Range 500 to 1200mbar
- *Oxygen Measuring Range 0-25%

- *Response Time T90 <30s
- *ppO₂ Accuracy <2%FS/0.1 mbar
- *Pressure Accuracy/Resolution +, - 5mbar/1mbar
- *O₂ Accuracy 0.1%
- *Lifetime 3-5 years

When unit is first powered on, the sensors will need to stabilize. This warmup period (2-3 minutes) will be displayed on lower left corner of the screen.

The unit displays oxygen percentage, which compensates for temperature, humidity and altitude (barometric pressure).

GMS 5002 is calibrated using NIST gas mixture references. Oxygen calibration performed in 5% CO₂.

GMS-5002 INSTRUCTIONS

1. Place 9V battery into black battery case on bottom of the GMS-5002 enclosure.
2. To turn the GMS-5002 on, press the black power button, located on the front side of the enclosure.
3. Allow the GMS-5002 2-3 minutes to stabilize. Display's bottom left corner counts down warmup time.
4. Connect the gas lines from the two tanks to the Dual Flow Meter (DFM-3002). The line from the 95% N₂ & 5% CO₂ tank connect to the bottom tubing connector of the 50 LPM flow meter. And the line from the 95% O₂ & 5% CO₂ is attached to the bottom tubing connector of the 2.5 LPM flow meter.

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5. After the bottom tubing is attached to your gas tanks, attach the upper tubing of the DFM-3002 with the red pressure release valve to the connector marked "IN" of the GMS-5002. The connector on the left side of enclosure marked "OUT" will be attached to the MIC-101.
6. Leave both white tubing clamps on the incubator in the **OPEN** position prior to mixing gases and flushing the MIC-101. Failure to **OPEN** both white clamps will cause **EXCESSIVE PRESSURE** in the MIC-101. The MIC-101 is not designed to be a pressure or vacuum chamber. **Please read instructions for the MIC-101 prior to use.**
7. To mix gases first predetermine the approximate flow rates of the 50 LPM and 2.5 LPM flow meters to obtain the percentage of oxygen needed for your experiments. *Example: To obtain 5% O₂, 5% CO₂ and 90% N₂ set the 50 LPM meter at 47.5 LPM and the 2.5 LPM meter set at 2.5 LPM.*
8. Open both tanks and adjust flow meters to the predetermined flow rate settings. Reading the GMS-5002, adjust the flow meters to obtain desired accurate percentage of oxygen.
9. Flush 100 liters of gas through the MIC-101 containing desired percentage of oxygen.
10. Shut off gas tanks and seal MIC-101 by closing white tubing clamps.

DISPLAY FEATURES

1. Battery icon is located on upper left corner of display. Icon indicates remaining battery life. Screen flashes red when battery needs to be replaced.
2. Display's bottom left corner counts down warmup time.
3. Bottom right corner shows barometric pressure in mBars
4. Oxygen reading displayed in center of screen.

As we cannot anticipate nor control conditions of product application, we do not warrant suitability or favorable results. The GMS-5002 and accessories are for research purposes only and not for human use.

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