

Total Lab Solutions



Technical Bulletin

O₂ and CO₂ Calibration

CO₂ calibration for model MCO-5M (TC sensor model) Always calibrate the O₂ before CO₂

Step 1- O₂ calibration

Prior to O₂ calibration being performed, ensure the internal temperature, humidity; CO₂ density and O₂ density are stabilized. The O₂ must be calibrated first because CO₂ is affected by humidity and O₂ density.

Step 2- CO₂ calibration

Prior to CO₂ calibration being performed, ensure the internal temperature, humidity; CO₂ density and O₂ density are stabilized. If the operation is performed with unstable humidity, the CO₂ density may display incorrectly.

Note: The O₂ calibration must be completely finished before CO₂ calibration can begin, even if the O₂ is not being used. Even if the door is never opened after step 1, it still takes about 30 minutes to get stable conditions with the adjusted O₂ values since humidified air is removed from the chamber.

**The Thermal Conductivity (TC) sensor is very susceptible to changes in the humidity.

Approximate time to return to stable conditions:

After 30 second door opening: 2 hours

After humidifying water exchange: More than 2 hours

After initial unit startup: 8 hours

Single step calibration procedure for illustrated pump set
If you have the pictured pump set in, you can simultaneously calibrate the CO₂ and O₂

1. After power distribution, operate CO₂/O₂ concentration meters under warm air for at least 15 minutes or more to get an accurate measurement.
2. Connect the equipment as shown in image on the right.
3. When using the MCO-5M/5AC mounted thermal conductive sensors, measure after the following:
 - Humidify chamber inside and close door to reach stable conditions of 37°C.
 - Before measuring, run the incubator for at least 2 hours so stable conditions are reached for a whole a day and night.
4. When measuring CO₂, remove the suction immediately after peak holding.
5. After measuring the CO₂ and O₂ density, operate the unit while suctioning dry air for at least 15 minutes to dry the inside of the CO₂/O₂ sensors.

CAUTION:

- The CO₂ (TC) sensor shows high CO₂ density when the chamber humidity is temporarily decreased after door openings and closings, but this is normal.
- The CO₂ density is also affected when the humidifying water is significantly decreased so remember to always check water levels.



MCO-5M