

Inability to Calibrate Insta Trans O2 Transmitter

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Preface: the Insta Trans has constrained ability to calibrate the sensor/analyzer to the wrong concentration of gas. The way the electronics are designed, the unit cannot be adjusted for instance to make a 30ppm gas read 20ppm, for example. The gas concentration at the sensor must be correct to within 1% of target value for the unit to be able to calibrate reliably.

If one cannot calibrate the unit down, i.e. the adjustments stop at some value above the span gas value, there are several explanations and possibilities.

- A) a leak in the delivery system – to see if this is the case do the flow test to check for leaks
 - i) Put in span gas, wait for a stable reading at 2slpm, and record value, then drop flow to 0.2slpm, wait 5 minutes, and record value. If the value is higher at lower flow, this is normally indicative of a leak.
- B) Improper flow rate – make sure flow is between 0.2slp and 2slpm
- C) Back pressure on the unit – make sure the vent line has no devices on it and the sensor vent is connected directly to atmospheric pressure
- D) Sensors not purged down. Make sure that the sensors have recovered from the shock of atmospheric oxygen and are completely purged down. Sensors in unpurged state will have a large offset that can cause this problem
- E) Improper selection of span gas regulator/ and or span gas regulator not purged out properly. Regulators must be metal diaphragm dual stage SS regulators
- F) Improper cal gas selection. Calibrating sometimes on 10ppm range can be problematic in general as one can be fighting inadequate sensor purging, leaks, etc, so a calibration at 80ppm and above can be more robust. Also take care that the span gas has the span background and co2 composition at the sample gas.

Here is a video link showing the leakage problem. The inability to calibrate in this system was eventually found to be a welding grade regulator on the span gas cylinder, rather than the recommend dual stage metal diaphragm SS regulator. <https://www.youtube.com/watch?v=VQ03QftFK2Y>