



Gas Calibration Log Book Example

for **NDIR** Gas Monitors

Application Note A76

We recommend that you gas calibrate every **six (6) months** as a minimum. The **environmental conditions** have a significant effect upon sensor drift. **Ambient temperature changes** from the temperature at the time of the last gas calibration is the most common cause of sensor drift. Atmospheric pressure, humidity, and vibration also effect drift (see App Notes **A12, A30**).

We recommend that you keep a **Gas Calibration Log Book** to determine for yourself and your environment if the **6 month calibration interval** should be shortened or lengthened. Record the serial number (lot code) of the sensor, the date, the ambient temperature, the ZERO gas being used (nitrogen or fresh air), the ZERO Response before adjustment, the Certified Span Gas being used (i.e. 1000±20 ppm CO₂ or **R-22**) and the SPAN Response before any adjustment. The amount of ZERO or SPAN drift from the last recorded calibration date is a measure of instrument stability as well as calibration interval sufficiency. You may find that you can get away with just a ZERO adjustment every 6 months and both ZERO and SPAN once a year.

In addition to keeping a record of gas calibration and drift, the log also provides a record of functionality. It could be used to initiate preventive maintenance.

Example:

Serial#: **0102555** Model **2024** 3000 ppm R-22 Refrigerant Monitor

<u>Date</u>	<u>Tech initials</u>	<u>Ambient Temp °C</u>	<u>N₂ Zero before adj</u>	<u>1000 ppm R-22 before adj</u>	<u>N₂ Zero after adj</u>	<u>1000 ppm R-22 after adj</u>
3-Mar	RCP	25°C	0.33V, 200 ppm	1.92V, 1150 ppm	0.005 V	1.67 V
3-Aug	RCP	39°C	0.50V, 300 ppm	2.25V, 1350 ppm	0.007 V	1.68 V
3-Jan	RCP	5° C	-0.17V, -100ppm	1.33V, 800 ppm	0.005 V	1.67 V
3-Jun	RCP	30°C	0.67V, 400ppm	2.50V, 1500 ppm	0.002 V	1.67 V
3-Nov	RCP	10°C	-0.08V, -50ppm	1.50V, 900 ppm	0.004 V	1.67 V

Reviewing this log shows there is a correlation with ambient temperature effecting ZERO and SPAN drift. You might schedule your gas calibrations just after significant seasonal temperature changes occur to minimize this effect.

Refer to the specification sheet for each **NDIR** sensor for more information about gas calibration.

Our new Digital **NDIR** sensors have the last gas calibration information stored in EEPROM so you can see how much a sensor has drifted since the last calibration and the temperature of that last calibration is also stored.

The temperature compensation of these new Digital sensors (**2005SPI** & **2015SPI**) is much better so drift is much less.

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