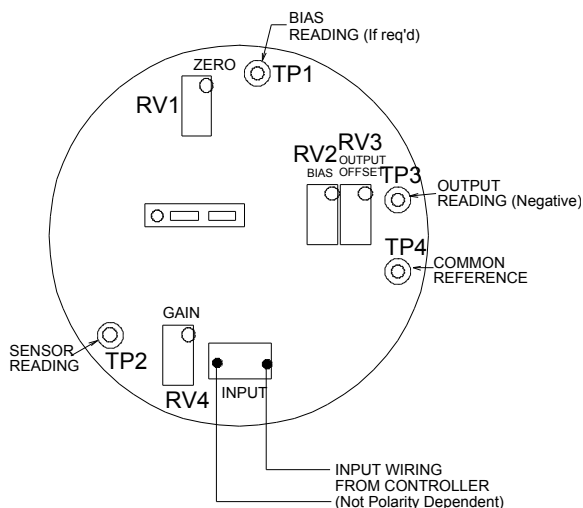




OPERATIONS MANUAL – TR-3200



CALIBRATION (Except NO & HCL biased sensors)

1. CONNECT THE TR-3200 UNIT TO A CONTROLLER, ONE WIRE TO + AND THE OTHER TO THE 4-20 mA LOOP RETURN (-). POWER-UP THE UNIT. TP4 (Black) IS THE COMMON REFERENCE FOR ALL VOLTAGE MEASUREMENTS. A high impedance DVM must be used.
2. MONITOR SIGNAL TEST POINT TP2 (Yellow) AND ADJUST THE ZERO POT (RV1) SO THE METER READS ZERO (0 +/- .001V) (Calibration area free of gas or Zero Gas applied).
3. MONITOR THE OUTPUT TEST POINT TP3 (Red) AND ADJUST THE OFFSET POT (RV3) SO THE METER READS -0.04V. (A current meter in the power line loop will read 4 mA).
4. WHILE STILL MONITORING THE OUTPUT TEST POINT TP3 (Red) APPLY TEST GAS TO THE SENSOR. (Flow rate 1.0LPM for NO₂/HCL/CL₂ otherwise 0.5 LPM). WAIT UNTIL THE READING STABILIZES
5. ADJUST THE GAIN POT (RV4) SO THE "TEST GAS TO RANGE" RATIO IS IN PROPORTION TO THE MAXIMUM OUTPUT CURRENT. SEE FORMULA BELOW.

There is some interactivity and it will be necessary to repeat steps 3 – 5 until no change is noted in the offset reading (-0.04V)

$$\text{OUTPUT VOLTAGE} = \left[\frac{\text{PPM CONCENTRATION OF TEST GAS}}{\text{DESIRED PPM MAXIMUM RANGE}} \times .16 \right] + 0.04$$

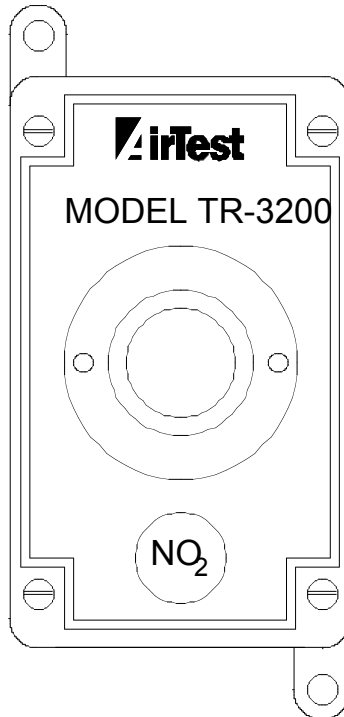
EXAMPLE: DESIRED RANGE 0 - 250 PPM
TEST GAS CONCENTRATION, 100 PPM

$$\begin{aligned} \text{OUTPUT VOLTAGE} &= [100/250 \times .16] + 0.04 \\ &= .064 + 0.04 \\ &= .104 \text{ VOLTS (EQUATES TO 10.4 mA)} \end{aligned}$$

AirTest Technologies, Inc



TR-3200 ELECTROCHEMICAL SENSOR/TRANSMITTER



TR-3200

The TR-3200 transmitter utilizes an electrochemical cell sensor. These sensors are more accurate, linear and gas selective than solid state sensors. Sensors are available to monitor many types of gases. NO₂ is most commonly used in parking structure applications to monitor diesel exhaust gases. Typically it operates in the range 0-10 ppm with OH&S alarm points at 3 and 5 ppm. The sensor and circuit board are housed in a cast aluminum enclosure with a tough PVC cover. There are top, bottom and rear entry points on the enclosure. The transmitter generates a 4-20 mA signal. This signal is linear with gas concentration.

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