**Application Note A58**

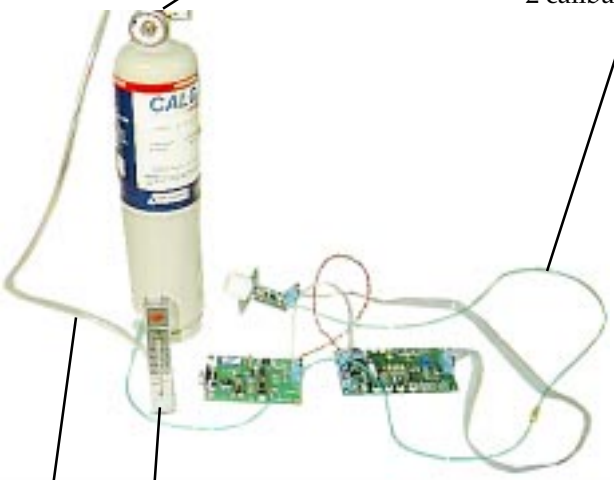
VALTRONICS

# $CO_2$ Diffusion Head Calibration Instructions

**$CO_2$ Diffusion Head Calibration Kit:**

**2 cylinders** of calibration gas:
one of **99.8**% **Nitrogen**
one of **5.00** ±0.01% **$CO_2$**
**Regulator**:
reuseable **300 ml**/min
with on/off valve
**Flow meter** - 1-500 ml/min
**Tubing** and **tubing connector**
Twin-pack **carrying case**

To order please call (209) 754-0707
or FAX (209) 754-0104




Gas calibration should be done a minimum of once every six months.
A calibration log where you record the unit's response BEFORE any adjusments are made will help you to decide if the period between calibrations should be longer or shorter (App. Note A26 ).

CALIBRATION INSTRUCTIONS:

1. Remove protective cap from top of nitrogen cylinder. Push and thread pressure regulator valve onto cylinder outlet. Very high flow rates in the duct may dillute the calibration gas in the cell. Make sure that the duct flow rate is low or remove the sensor from the duct.
2. Connect plastic tubing from pressure regulator outlet to flow meter inlet. (bottom connection of flow meter)
3. Connect plastic tubing from flow meter outlet (top connection) to unit to be tested.
4. Make sure unit to be tested is turned on and has had a 5 minute warm-up.
5. Connect voltmeter to voltage signal output or observe signal output on field test unit.
6. Make sure flow meter is in an upright position. Open flow valve slowly while observing flow meter.
7. Adjust the flow to between 200 - 350 ml/min (cc/min).
8. After 2 to 3 minutes of continuous nitrogen flow, observe signal output and press **ZERO** button (**0.00 volts**) if required. See specification for RS232 interface and procedure.
9. Turn off flow valve and remove pressure regulator valve from nitrogen cylinder.
10. Replace nitrogen cylinder with cylinder containing **5.0**% **$CO_2$**.
11. Open flow valve and observe signal output. (see scale data for voltage reading)
12. Allow sample to flow until final indication is obtained. Press SPAN button if required. (see specification for RS232 interface) **0.50 volts** for a Model **2005SPI-2** set at 10% full scale
13. Turn off flow valve and remove pressure regulator from cylinder.

e-mail: **vti@val-tronics.com** • 3463 Double Springs Road • Valley Springs, CA 95252 • (209) 754-0707 • FAX (209) 754-0104

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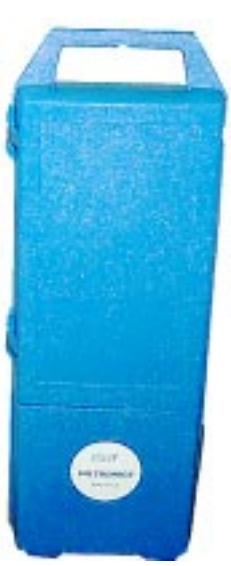
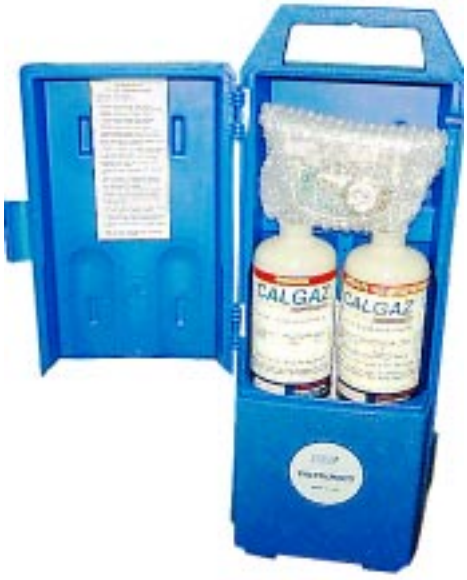
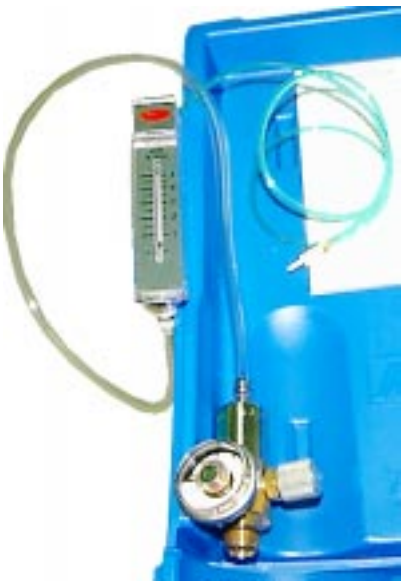
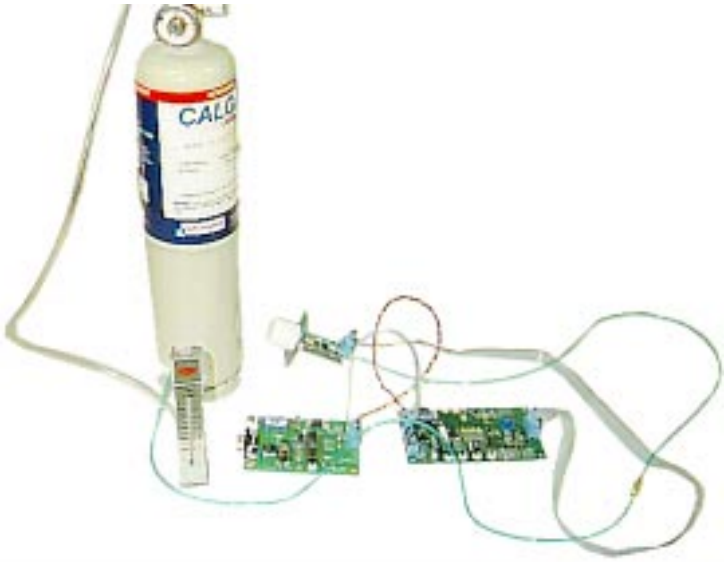
0 to 500 ml/minute **flow meter**, **tubing**, tubing **connector**, pressure **regulator** and **flow valve**





23 x 8.5 x 3 inches




Model **2005SPI-2** Digital $CO_2$ sensor with **RS232 test board** connected to any PC com port using a terminal emulation program like **HyperTerminal** that come with Windows.


0 to 500 ml/min (cc/min) **flow meter**

- **Field Calibration Kits** are available

they consist of: one tank with an 8 hour supply of 99.8% **$N_2$**
one tank with an 8 hour supply of **5.0% $CO_2$**
a pressure regulator, flow meter, and carrying case
Concentrations of 0.1% (1000 ±20 ppm certified) $CO_2$, 0.2%, 0.5%, 1%, 5%, and 15% are in stock. These are all certified to be ±2% of reading.

- Replacement gas tanks are $CO_2$ (order # **0615**) & $N_2$ (order # **0616**). These 14" high tanks contain 3.6 $ft^3$ or 103 liters @70°F and 1000 PSIG.
- Special gases and concentrations may be ordered with 3-6 week lead times depending on the specific gas ordered.
- All volume discounts are based upon a single shipment
- Prices are subject to change without notice.

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