

CONTINUOUS PROTECTIVE PURGE FLOW TRANSMITTER

THEORY OF OPERATION

A regulated constant volume of purge air is introduced in sensing lines. When any resistance to flow occurs, constant volume purge circuit will create an equal amount of back pressure to overcome this resistance. Velocity pressure sensed at airflow station is reproduced as a back pressure at flow transmitter by purge air. Sensing lines are filled with purge air, thereby keeping lines free of duct effluent.

Since each sensing line can have an unequal resistance, system requires initial zeroing to achieve zero differential pressure at the transmitter. This is accomplished by adjusting the amount of purge air in one of the two legs of the sensing lines. Adjustment is made until true differential is achieved at transmitter. No flow or pressure condition in duct must exist for initial zeroing.

FLOW CALIBRATION PROCEDURE

1. Verify high and low signal input lines are connected to flow element and have zero input pressures. (Zero flow condition.)
2. Connect a calibration gauge PI-CAL as shown.
3. Open HV-1 to provide pressure to purge generator PY-1. Set PRV-1 to obtain a reading of 5 PSI at PI-1.
4. Check calibration gauge for zero differential after 15 or more seconds to see if balancing of purge differential pressure is required.
5. Adjust the V.R. screw CW or CCW until you have a reading as close to zero as possible.

Caution: Hard tubing is recommended, as any blockage (pinching) of sensing lines can cause over-pressurization damage to the transmitter. Annual removal and cleaning of the flow element may be required to ensure accuracy and performance. When installed in harsh, particulate laden environments, more frequent monitoring and cleaning may be necessary.

