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Flow Controller and Back Pressure Indicator (CES 280)

*Owner's Technician
Manual*

Contact Information

If you have any questions or comments about this instrument please feel free to contact us.

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Introduction

Features:

- Accurate, high speed pneumatics.
- Built in laminar flow element
- Easy to read 0.56" LED display.
- Easy to access front panel controls.
- Immune to EMI / RFI (i.e. electrical and radio interference)
- Cost Effective

Description:

The CES 280 Flow Controller and Back Pressure Indicator produces a controlled flow and back pressure indicator in one convenient instrument.

The Flow Controller monitors the flow being controlled in a laminar flow element. The pressure drop across the laminar flow element is monitored by a variable reluctance pressure transducer, transformed into an electrical signal by the oscillator demodulator. The actual flow is compared to the desired flow. The output of the CES 227 controls an E/P that controls the flow through an air to vacuum converter that produces the flow through the flow element.

Flow Controller Calibration:

1. Power up instrument; allow reading to settle.
2. Place front panel mode selector switch to the flow (ML/S) position.
3. Adjust Z2 on CES 155 card until front panel meter reads zero (flashing minus sign is desirable).
4. Adjust pots on CES 227 card as follows (not necessarily if the unit is already in service and operating satisfactorily):
 - (a) Reset - Approximately 1/3 turn CW
 - (b) Gain – Approximately 2/3 turn CW
 - (c) Rate – Full turn CW
5. Connect a known accurate flow measuring device in series with the CES 280.
6. Connect instrument air supply to rear bulkhead fitting. Forty PSI is recommended for optimum performance.
7. Adjust the flow control on the front panel (top) until the display reads the desired flow range (display reads in ml/s).
8. Adjust S2 on the CES 155 card until the known standard reading coincides with the 280's display. Due to the nature of the controls, the display on the 280 will change the actual flow (not the display reading).
9. Disconnect the air supply and recheck the zero.
10. Repeat steps 6 – 9 until satisfactory results are achieved.

Back Pressure Calibration:

1. Power up instrument; allow reading to settle.
2. Place front panel mode selector switch to the flow (ML/S) position.
3. Adjust the Z/B on the CES 155 card until the display reads zero (flashing minus sign is desirable).
4. Apply pressure using a precision pressure measuring instrument.
5. Increase pressure to maximum desired value (not to exceed 55" H₂O for the standard model).
6. Adjust 5 on the CES 155 card until the display reads the desired number of engineering units (55" H₂O or 102mm Hg).
7. Disconnect the air supply and recheck the zero.
8. Repeat steps 4 – 8 until satisfactory results are achieved.