VM9000 Controller EPR Calibration Instructions

Introduction

These instructions provide the calibration process for the ValveMate 9000 controller (P/N 7028693) electronic pressure regulators (EPRs).

Tools and Supplies

Description	Minimum Accuracy Requirement	Recommended Equipment	Purpose
Two (2) calibrated pressure gauges	±1% full scale for a 100 psi gauge	Fluke 700G06: -12 to 100 psi pressure gauge calibrator	Measures the air output from the ValveMate 9000 controller

Performance Validation

The following range of pressure setpoints will be calibrated. The table includes maximum allowable deviations.

Product Model	Verification Points (psi)	Maximum Deviation
ValveMate 9000 controller	1	±1
	5	±2
	10	±2
	15	±2
	20	±2
	25	±2
	30	±2
	35	±2
	40	±2
	45	±2
	50	±2
	55	±2
	60	±2
	65	±2
	70	±2
	75	±2
	80	±2
	85	±2
	90	±2
	95	±2
	100	±2

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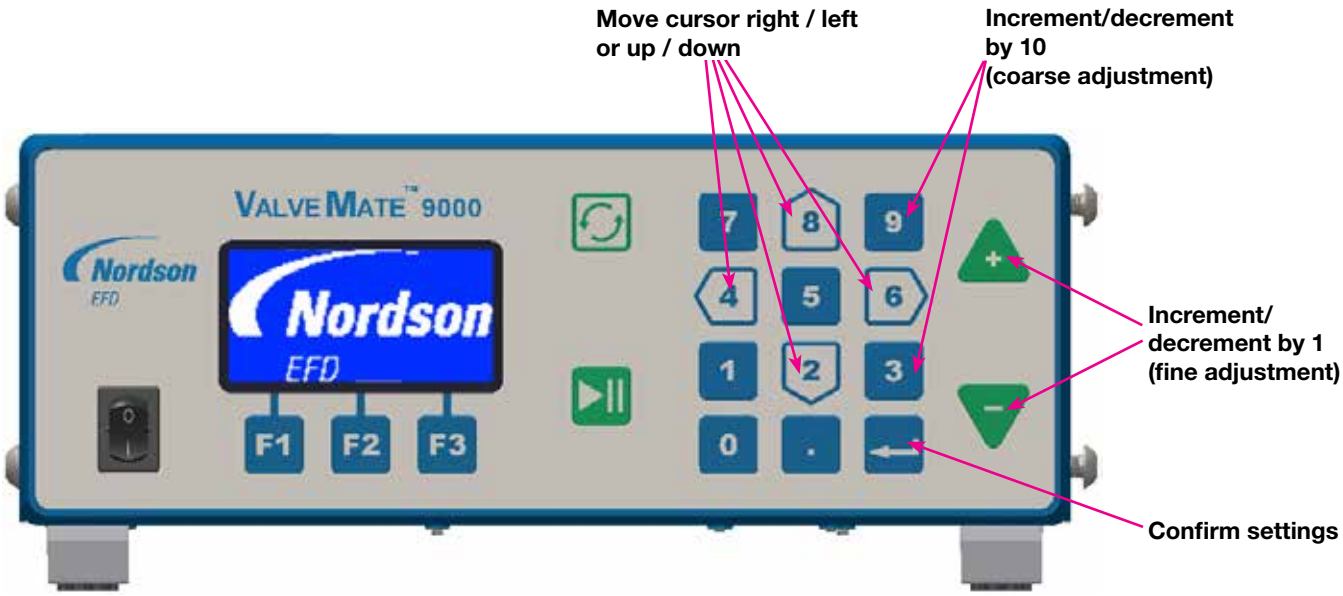
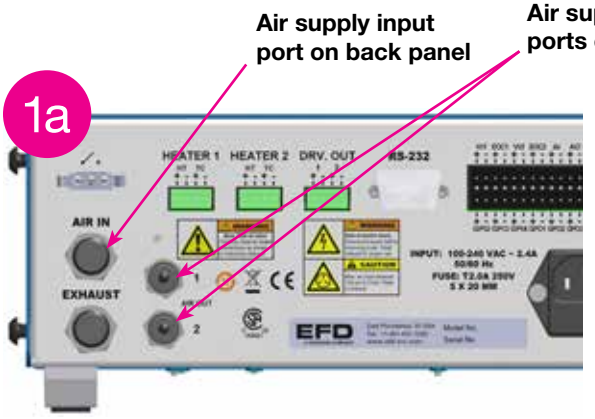
Keys Used for Calibration



Calibration Procedure

Follow this procedure to calibrate the ValveMate 9000 controller EPRs.

1. Connect supply air (at least 100 psi but not exceeding 130 psi) to the air input port and connect the two calibrated pressure gauges to each of the air output ports.



2. If the unit is powered on, switch OFF the power.

3. Press and hold the 4 key on the keypad and then switch ON the power. When the calibration screen appears in the display (shown in Figure 3), release the 4 key.

Calibration Procedure (continued)

4. In Figures 3 and 4, the highlighted text is the cursor. Use the arrow keys (2, 4, 6, and 8) to move the cursor to the parameter to be modified. Refer to the table below for parameter descriptions. Only the SET and ACT parameters are selectable with the cursor.

EPR1		EPR2	
DAC1	Displays the current count value	DAC2	Displays the current count value
SET	Displays the psi setpoint and modifies the DAC1 count for pressure regulation	SET	Displays the psi setpoint and modifies the DAC1 count for pressure regulation
ACT	Displays the current pressure reading and modifies the ADC1 count	ACT	Displays the current pressure reading and modifies the ADC2 count
ADC1	Displays the current count value	ADC2	Displays the current count value

3

Calibration screen, SET selected.

4

Calibration screen, ACT selected.

5. At the top of each column on the VM9000 display, the current target pressure is displayed. In Figure 3, the current target pressure is 0 psi. Press the ENTER key to confirm these settings and move to the next target psi.

6. With the target psi at 1 (shown in Figure 4), the unit sets the EPR1 and EPR2 regulators to regulate the air outputs at 1 psi each. Read the air output pressures shown on the external pressure gauges. Adjustment will be necessary to match the SET and ACT values shown on the unit to the pressure reading from the external gauge per each output port.

7. Use the arrow keys to move the cursor to the SET parameter under the EPR1 column. Use the + or - keys for fine adjustment (increments or decrements of 1) or the 9 or 3 keys for coarse adjustment (increments or decrements of 10).

7a

Modifying a parameter, fine adjustment.

7b

Modifying a parameter, coarse adjustment.

Calibration Procedure (continued)

8. Keep adjusting the SET value until the external pressure gauges reach the target psi (in this case, 1 psi). If you overshoot the target psi when adjusting, decrement the DAC count by pressing the 3 key to exhaust the regulated air; then slowly increment the values until the desired psi is reached.

Pressure gauge reading target psi of 1.

9. Now that the SET target pressure has been reached, the ACT parameter must be adjusted to match the pressure gauge reading. Use the arrows keys to move the cursor to the ACT parameter under EPR1 and then use the + and - keys to adjust the reading. Wait 2 seconds in between increments/decrements to allow the ACT reading to update.

10. When the ACT reading matches the pressure gauge reading, repeat this procedure starting from step 6 to modify the EPR2 column parameters.

Both pressure gauges reading target EPR calibration of 1 psi.

Calibration screen showing adjusted SET and ACT target psi readings of 1.

11. Press the ENTER key to lock the adjustments for the current target psi. The unit moves to the to the next target psi, in this case 5 psi. The unit will regulate up to the next value and adjustment can be performed on both channels.

Pressure gauges BEFORE adjusting for a target pressure of 5 psi.

Pressure gauges AFTER adjusting for a target pressure of 5 psi.

12. Repeat steps 6–11 for each target psi shown under “Performance Validation” on page 1, up to the final target psi of 100. After the final adjustment is complete, the unit restarts and returns to normal operation. The unit is now calibrated.

NOTE: Repeat this procedure as necessary for each function to be validated.