



V200 Fine Tuning Positioner Feedback

If the positioner and the feedback have been accurately calibrated but the feedback is not linear the steps below will help improve feedback linearity. **Important Note:** A full gauge set is very helpful when trying to fine tune a positioner and feedback. Being able to see the pressure movement, and their reaction to signal changes helps you know the positioner is responding. **Check list.**

- Make sure air is turned on.
- Will need to make sure you have 2 good loop calibrators.
- One for generating a 4 to 20mA signal
- One for reading a 4 to 20mA signal (BOTH UNITS MUST BE SET TO HAVE A 24V LOOP SOURCE) IF YOU DO NOT SET THE CALIBRATOR IN THE 24V source SETTING, YOU WILL NOT READ ANYTHING ON THE FEEDBACK.
- Normal flat head screwdriver
- Tweezer (small screwdriver) for adjusting span and zero trim pots settings on the feedback.
- Check 4mA and 20mA. On the feedback, this will be done by mechanically moving the valve/actuator as stated below:
- At 4mA make sure that the valve is not open/closed by manually pushing up on the balance arm that is connected to the spool valve. There should be no movement; this can be seen/read in the feedback. If you see movement in the feedback, make adjustments to the zero on the positioner. NOT THE ZERO ON FEEDBACK.
- At 20mA feedback make sure the valve is open/closed by manually pushing down on the balance arm that is connected to the spool valve. There should be no movement; this can be seen in the feedback. If you see movement in the feedback, make adjustments to the span on the positioner, outer silver wheel. NOT THE SPAN ON FEEDBACK.
- Once these adjustments have been made:
- Give positioner a 4mA control signal. Make adjustments to the zero on FEEDBACK as necessary to get the output close to the 4mA input.
- Give positioner a 20mA control signal. Make adjustments to the span on FEEDBACK as necessary, to get the positioner input close to the 20mA output.

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Positioner Feedback (continued)

- To assure that the positioner is as linear as possible.
- Start at 4mA control signal.
- Give positioner a 4.5mA signal.
- If the positioner moves close to the input signal (as read on the feedback module) then the zero on positioner is correct. If not then give the positioner a 4mA signal and adjust the zero on the positioner so that the positioner is about to move-gauges are very helpful here.
- Adjusting the zeros so there is movement at 4mA and then, turning the zero back half a turn.
- PLEASE NOTE THAT ON HEAVIER SET SPRINGS IN THE ACTUATOR IT MAY TAKE SOME TIME FOR MOVEMENT TO OCCUR-if the gauges are reacting the positioner is responding.
- Give positioner a 20mA signal.
- Give positioner a 19.5mA signal.
- If the positioner moves close to the input signal (as read on the feedback module) then the span of the positioner is correct. If not then give the positioner a 20mA signal and adjust the span on the positioner so that the positioner is about to move.
- Adjust the span so there is movement at 20mA then, turning the zero back half a turn.
- PLEASE NOTE THAT ON SPRING RETURN AND HEAVY SET SPRINGS CAN CAUSE THE MOVEMENT IN THE VALVE TO BE DELAYED SLIGHTLY. BE PATIENT.
- Once these steps have been completed your positioner and feedback should be very close to linear in both positioner and feedback.

NOTES:

- Typically if the feedback is way off at 8mA, after the zero and span have been set on the feedback it means that the zero on the positioner is off.
- Typically if the feedback is way off at 16mA, after the zero and span have been set on the feedback it means that the span on the positioner is off.
- Cam setting-as shown in our manual, it is best to have the small 1/16" gap between the roller and the tip of the cam-this helps the unit react more quickly to beginning signal change.
- On spring return actuators, if "air assist" can be utilized this will generally improve overall control and response.
- Valves with relatively high breakaway torques such as butterfly valves and plug valves can certainly affect the 4 mA and 20mA calibration and feedback. If these types of valves are being used, a judgment by the customer has to be made to "balance" feedback accuracy during stroke and control vs. shutoff or full open position.