



# UDC 3500 Application Note

## **Position Proportional and Three Position Step Output Calibration**

### **Position Proportional control**

#### *Position Proportional Control Output Models*

This model only requires that the “Motor Time be entered. This model must have its output calibrated per the entire procedure to ensure the displayed output (slidewire position) agrees with the final control element position.

### **Three position step control**

#### *Three Position Step Control Output Models not using slidewire feedback.*

This model only requires that the “Motor Time be entered.

#### *Three Position Step Control Models using slidewire feedback.*

This model only requires that the “Motor Time be entered. This model must have its output calibrated per the entire procedure to ensure the displayed output (slidewire position) agrees with the final control element position.

### **Equipment needed**

None.

### **Connections**

Apply power and leave all field wiring connected to the rear terminals.

### **Procedure**

The procedure for calibrating the Three Position Step or Position Proportional control is listed in Table 1.

**Make sure LOCKOUT in Tuning Set Up group is set to NONE.**

**ATTENTION** For Three Position Step Control (TPSC), these prompts *only* appear when “SLIDEW” or “SW EMUL” is selected in the INPUT 3 Setup group. For Position Proportional Control, the Output algorithm must also be configured for “POSPROP”. The Motor Time must be entered in the Output Algorithm Group for both Position Proportional or for Three Position Step control.



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**Table 1 Position Proportional and Three Position Step Output Calibration Procedure**

Step	Description	Press	Action
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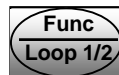
1 Enter Calibration Mode



until you see  
*Upper Display = CALIB*  
*Lower Display = POS PROP*

continued

2 Select Automatic or Manual Calibration

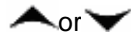


until you see:  
*Upper Display = DISABLE*  
*Lower Display = POS PROP*

You can calibrate the controller output manually or let the controller calibrate the output automatically.

If the slidewire has never been calibrated, you must use DO AUTO first. In the "Automatic Calibration Mode" (DO AUTO), the controller relays automatically move the motor in the proper direction.

If desired, however, the motor may be manually positioned to 0 % and 100 % positions. Disconnect the relay wires. Use DO MAN. In the "Manual Calibration Mode" (DO MAN), the motor does not move. Instead, the existing 0 % and 100 % values may be changed with the ▲ or ▼ key.



to select automatic or manual calibration.

*Upper Display = DO AUTO or DO MAN*  
*Lower Display = POS PROP*

If you select...	Then...
DO AUTO	go to Step 3
DO MAN	go to Step 5

**ATTENTION** When calibration is terminated, this selection reverts to DISABLE.

3 **DO AUTO**  
Set 0 % value



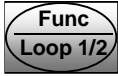






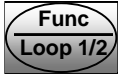


The decrement relay is turned on to move the motor to 0 % position.

*Upper Display =*  
 (counts of slidewire feedback 0-3000)  
*Lower Display = ZERO VAL*

When the motor stops, the display should stop counting, then go to the next step.



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Step	Description	Press	Action
4	<b>DO AUTO</b> Set 100 % value		The increment relay is turned on to move the motor to 100 % position. <i>Upper Display =</i> (counts of slidewire feedback 0-3000) <i>Lower Display = SPAN VAL</i>  When the motor stops, the display should stop counting, then, go to Step 8.
5	<b>DO MAN</b> Set 0 % value	   or 	You will see: <i>Upper Display =</i> (the existing zero calibration value in counts) <i>Lower Display = ZERO VAL</i>  until the desired zero value is reached in the upper display. <i>Upper Display =</i> (the desired zero calibration value) <i>Lower Display = ZERO VAL</i>
6	<b>DO MAN</b> Set 100 % value	   or 	The controller will store the 0 % value and you will see: <i>Upper Display =</i> (the existing span calibration value in counts) <i>Lower Display = SPAN VAL</i>  until the desired span value is reached in the upper display. <i>Upper Display =</i> (the desired span calibration value) <i>Lower Display = SPAN VAL</i>  For manual calibration, the motor does not move from its position prior to the start of Position Proportional calibration.
7	Exit the Calibration Mode	    or 	The controller will store the 100 % value.  To exit the calibration mode