

8.3 Position Proportional and Three Position Step Output Calibration

| | |
|---|---|
| Position proportional control | When the UDC 3300 controller has a Position Proportional control output, calibrate the controller so that the increase and decrease relays operate properly with respect to the position of the external feedback slidewire. |
| Three position step control | <p><i>Three Position Step Control Output Models with Motor Position Indication (Model Numbers DC330X-EE-XXX-X2, DC330X-AA-XXX-02)</i> 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.</p> <p><i>Three Position Step Control Output Models without Motor Position Indication (Model Numbers 330X-EE-XXX-X0, DC330X-AA-XXX-X0)</i> This model only requires that the "Motor Time" be entered as shown in the calibration procedure. FULL CALIBRATION IS NOT REQUIRED.</p> |
| Equipment needed | None |
| Connections | Apply power and allow the controller to warm up 30 minutes before you calibrate. Leave all field wiring connected to the rear terminals. |
| Auto mode vs manual mode | There are two ways in which to calibrate Position Proportional or 3 Position Step control: AUTO mode or MANUAL mode. |
| Rules for auto mode vs manual mode | The Auto-mode selection must be done at least once before the manual mode will operate properly. Failure to use the Auto-mode procedure will prevent the controller from going into automatic control mode. |
| Displayed values | During the Auto-mode calibration procedure, the values being displayed are used only to indicate if the motor is still traveling. To view the actual calibration value, use the manual mode after the Auto-mode is completed. These values can be changed for purposes of tweaking the calibration. |

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8.3 Position Proportional and Three Position Step Output Calibration, Continued

Procedure

The procedure for calibrating the Position Proportional output and 3 Position Step control output is listed in Table 8-3. Make sure LOCKOUT in Tuning Set Up group is set to NONE. See *Section 3 – Configuration*.

For *Three Position Step Control Output models without Motor Position Indication*, do steps 1 and 2 only.

For *Position Proportional Output and Three Position Step Control Output models with Motor Position Indication*, follow the entire calibration procedure.

ATTENTION These prompts *only* appear when position OUT ALG is selected. If motor position for 3PSTEP is desired, first configure unit for “position.” After calibration the unit can be switched to 3PSTEP.

Table 8-3 Position Proportional and 3 Position Step Output Calibration Procedure

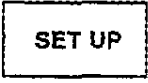
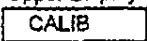






| Step | Description | Press | Action |
|------|--|--|--|
| 1 | Enter Calibration Mode |  | until you see Upper Display  Lower Display  |
| 2 | Set Motor Traverse Time NOTE: This is the time it takes the motor to travel from 0 to 100%. |  | until you see: Upper Display  ← a value Lower Display  |
| | |  or  | until the proper motor stroke time is reached (see the motor specs or measure the time) Range of setting = 5 to 1800 Seconds |

Table 8-3 is continued on the next page

8.3 Position Proportional and Three Position Step Output Calibration, Continued

Procedure, continued

Table 8-3 Position Proportional and 3 Position Step Output Calibration Procedure, Continued

| Step | Description | Press | Action | | | | |
|------------------|--|--------------------------|---|------------------|---------|---------|--------------|
| 3 | Select Automatic or Manual Calibration | FUNCTION LOOP 1/2 | <p>until you see:</p> <p>Upper Display DISABLE</p> <p>Lower Display POS PROP</p> <p>You can calibrate the controller output manually or let the controller calibrate the output automatically.</p> <p>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.</p> <p>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 ▼ keys.</p> | | | | |
| | | ▲ or ▼ | <p>to select automatic or manual calibration.</p> <p>Upper Display [] ← DO AUTO</p> <p>Lower Display POS PROP</p> <p style="text-align: center;">or</p> <p style="text-align: center;">DO MAN</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>If you select...</th> <th>Then...</th> </tr> </thead> <tbody> <tr> <td>DO AUTO</td> <td>go to Step 4</td> </tr> <tr> <td>DO MAN</td> <td>go to Step 6</td> </tr> </tbody> </table> <p>ATTENTION When calibration is terminated, this selection reverts to DISABL.</p> | If you select... | Then... | DO AUTO | go to Step 4 |
| If you select... | Then... | | | | | | |
| DO AUTO | go to Step 4 | | | | | | |
| DO MAN | go to Step 6 | | | | | | |
| 4 | DO AUTO Set 0% value | FUNCTION LOOP 1/2 | <p>The decrement relay is turned on to move the motor to 0% position.</p> <p>Upper Display [] ← counts of feedback slidewire (0 to 3000)</p> <p>Lower Display ZERO VAL</p> <p>When the motor stops, the display should stop counting, then go to the next step.</p> | | | | |

Table 8-3 is continued on the next page

8.3 Position Proportional and Three Position Step Output Calibration, Continued

Procedure, continued

Table 8-3 Position Proportional and 3 Position Step Output Calibration Procedure, Continued

| Step | Description | Press | Action |
|------|---------------------------|--------------------------|--|
| 5 | DO AUTO Set 100% value | FUNCTION LOOP 1/2 | <p>The increment relay is turned on to move the motor to 100% position.</p> <p>Upper Display <input type="text"/> ← counts of feedback slidewire (0 to 3000)</p> <p>Lower Display <input type="text"/> SPAN VAL</p> <p>When the motor stops, the display should stop counting, then, go to Step 8.</p> |
| 6 | DO MAN Set 0% value | FUNCTION LOOP 1/2 | <p>You will see:</p> <p>Upper Display <input type="text"/> ← The existing zero calibration value in counts.</p> <p>Lower Display <input type="text"/> ZERO VAL</p> |
| | | ▲ or ▼ | <p>until the desired zero value is reached in the upper display.</p> <p>Upper Display <input type="text"/> ← The desired zero value</p> <p>Lower Display <input type="text"/> ZERO VAL</p> |
| 7 | DO MAN Set 100% value | FUNCTION LOOP 1/2 | <p>The controller will store the 0% value and you will see:</p> <p>Upper Display <input type="text"/> ← The existing span calibration value in counts</p> <p>Lower Display <input type="text"/> SPAN VAL</p> |
| | | ▲ or ▼ | <p>until the desired span value is reached in the upper display.</p> <p>Upper Display <input type="text"/> ← The desired span value</p> <p>Lower Display <input type="text"/> SPAN VAL</p> <p>For manual calibration, the motor does not move from its position prior to the start of Position Proportional calibration.</p> |

Table 8-3 is continued on the next page

8.3 Position Proportional and Three Position Step Output Calibration, Continued

Procedure, continued

Table 8-3 Position Proportional and 3 Position Step Output Calibration Procedure, Continued

| Step | Description | Press | Action |
|------|---------------------------|--|---|
| 8 | Exit the Calibration Mode | <div style="border: 1px solid black; padding: 2px; text-align: center;"> FUNCTION LOOP 1/2 </div> | The controller will store the 100% value. |
| | | <div style="border: 1px solid black; padding: 2px; text-align: center;"> LOWER DISPLAY </div> <p style="text-align: center;">or</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> SET UP </div> | To exit the calibration mode. |