

Val-Co Ventra Controller – “Out of Position” Troubleshooting

1. Background:

- a. Alarm appearance – “**ACTIVE ALARM**” requires action to correct and clear (pressing “ENTER”)



*ACTIVE ALARM FOR 7/05 AT 13:23 ZONE 1
#01 Side Curtain #1 Out of Position

- b. Alarm appearance once cleared – “**ALARM HISTORY**” no further action required



ALARM HISTORY FOR 7/05 AT 14:46 ZONE 1
#01 Side Curtain #1 Out of Position

- c. Why alarm occurs –

- i. **Whisker Switch** – When installed in the software with non-zero values for validations and status of whisker switch is OFF (open circuit) when it should be ON based on calculated position or ON (closed circuit) when it should be OFF based on calculated position then it will “out of position” alarm. Validation values create a window of operation in which no alarm occurs if the whisker switch transitions from OFF to ON going open and ON to OFF going closed, anywhere between “LOW” and “HIGH” inches of opening (older software will show “LOW” and “HIGH” as a percentage of full open).



WHISKER SWITCH GROUP #1 SETTING Z1-S01
Validate Switch - Low: 0 High: 0

- ii. **Position Sensor** – When “Enable Position Alarm?” is set to YES and calculated position of the inlet compared to position sensor reading of position, differs by more than the percentage in “PERCENT OUT OF POSITION TO ALARM:” it will “out of position” alarm. It will also “out of position” alarm if the position sensor is not calibrated or has failed calibration.



POSITION SENSOR GROUP #1 SETTING Z1-S01
Enable Position Alarm? YES



POSITION SENSOR GROUP #1 SETTING Z1-S01
Percent OUT of Position to Alarm: 20%

2. Troubleshooting Whisker Switch Issues:

- a. **STEP 1 – Look at the Curtain** to see how far open it is and **compare to** opening size shown in **“Current Equipment Status”** (Press “Current Status” then “Right” then “Down” until Curtain Opening Size is shown)



- i. If Different – **Manually adjust** using the OPEN and CLOSE toggle switches until they are the **same**. Repeat for each Curtain (In Current Equipment Status showing Side Curtain #1, press “+” key to see status for #2, etc.)
 - ii. **Clear any Alarms** (CANCEL – CANCEL – CANCEL – LEFT – ENTER – ENTER – + – ENTER – ENTER then – + – ENTER – ENTER repeatedly until all “ACTIVE ALARMS” are Cleared)
- b. **STEP 2 – Check Whisker Switch and wiring** by going to Whisker Switch Status shown in **“Current Equipment Status”** (Press “Current Status” then “Right” then “Down” until Whisker Switch Status is shown); the status will be “OFF” if the switch is not activated and “ON” when the switch is activated. Watch this screen while opening and closing the curtain to be sure this status is correct.
 - i. **If Reversed** – Closed curtain = Whisker Switch ON and Open Curtain = Whisker switch OFF then the connection to the whisker switch needs to be corrected, move the wire on the “NC” terminal to “NO”.
 - ii. **If Status Doesn’t Change** – Check wiring and input assignment (Digital Input assigned can be seen by Pressing “System Setup” then “Down” to “Press Enter to LIST Control Devices” – ENTER then + until Whisker Switch is shown. Note Channel shown and confirm wiring to that digital input on the back board). If correct then replace the Whisker Switch.
- c. **STEP 3 – Check Settings**

- i. Whisker Switch Settings –

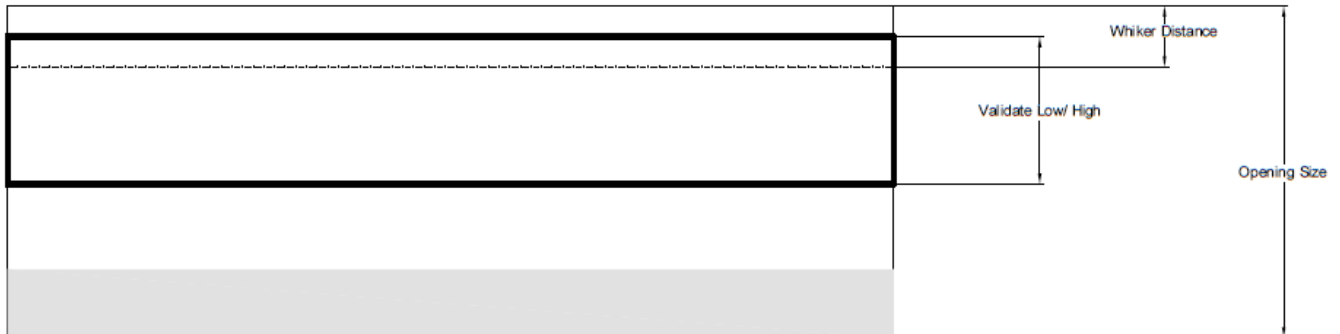
1. Check to see that it is attached to a curtain, the correct one. (Press “System Setup” then “Left” twice to Whisker Switch settings. Arrow “Down” for additional settings)



2. Set Validate Switch “Low” and “High” inches to produce a safe window of operation, where the whisker switch must transition states or else an alarm for out of position results.



3. To determine actual whisker switch position: Manually Close the curtain then time manually running it open until Current Equipment Status shows the Whisker Switch changing from OFF to ON. This time divided by Curtain full open travel time in seconds then multiplied by Curtain full opening size = Whisker Distance. Whisker Switch Low Validation in inches must be smaller than the Whisker Distance. High Validation must be larger than the Whisker Distance. Typical settings: Low = $\frac{1}{2}$ of Whisker Distance, High = 2 X Whisker Distance.



4. Set delay between alarm condition appearing and alarm becoming active. To reject intermittent state changes and alarms set to a number of seconds greater than the open and pause time.

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WHISKER SWITCH GROUP #1 SETTING    ZONE 1
Seconds delay alarm Out of Position: 15
  
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ii. Fan Settings –

1. Each fan that is to cut out when operating in Natural Side Curtain Ventilation needs to be set for minimum Curtain opening size for this to happen.

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VARI-PIT FAN GROUP #1 SETTING    ZONE 1
Fans OFF at Curtain Opening of    5"
  
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2. Each fan set to "Look At" a curtain that has a whisker switch attached or all curtains as shown.

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VARI-PIT FAN GROUP #1 SETTING    ZONE 1
Looking at(1): ALL Sidewall Curtains
  
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3. Each fan may be set to come back on continuously when a high temperature is exceeded.



VARI-PIT FAN GROUP #1 SETTING ZONE 1
Fan OVERRIDE Curtain Open Temp: 95.0

iii. Side Curtain Settings –

1. Properly timed full curtain travel times must be entered into settings. Also make sure full opening size measured with a tape measure is correct. These settings being correct are important if out of position alarms are to be avoided.



SIDE CURTAIN GROUP #1 SETTING ZONE 1
Full Open Travel Time: 3:00



SIDE CURTAIN GROUP #1 SETTING ZONE 1
Full Close Travel Time: 3:00



SIDE CURTAIN GROUP #1 SETTING ZONE 1
Full Opening Size (Inches): 48"

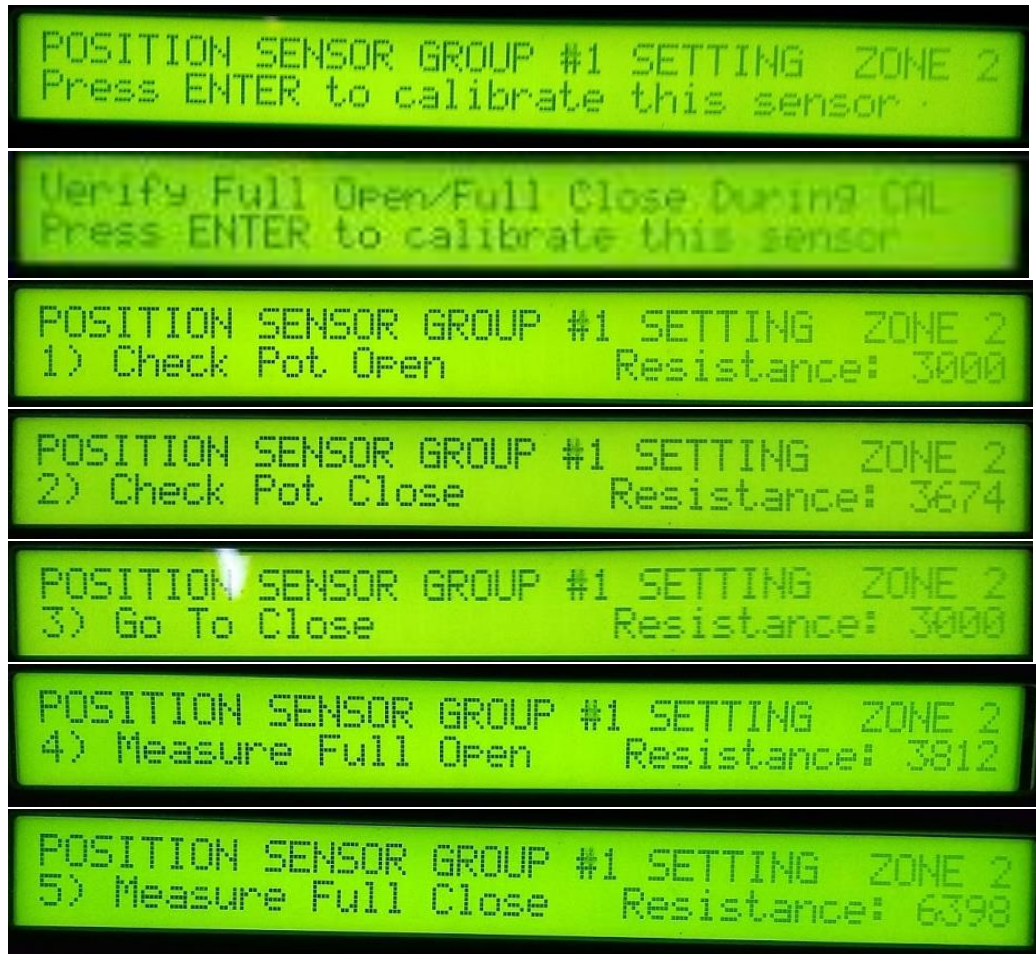
2. Keeping the curtain in calibration can avoid out of position alarms. Setting a once a day Resync time will help by ensuring a full open or full close calibration (whichever is closest) at the time of day set.



SIDE CURTAIN GROUP #1 SETTING ZONE 1
Perform Re-Sync at: 0:00

3. Troubleshooting Position Sensor Issues:

- a. **STEP 1 – Look at the Inlet** to see how far open it is and **compare to** opening size shown in **“Current Equipment Status”** (Press “Current Status” then “Right” then “Down” until Inlet Opening Size is shown)
 - i. If Different – **Manually adjust** using the OPEN and CLOSE toggle switches until they are the **same**.
 - ii. **Clear any Alarms** (CANCEL – CANCEL – CANCEL – LEFT – ENTER – ENTER – + – ENTER – ENTER then – + – ENTER – ENTER repeatedly until all “ACTIVE ALARMS” are Cleared)
- b. **STEP 2 – Replace the Position Sensor** (potentiometer) and **Recalibrate**
 - i. For Val-Co model C433 actuator, the replacement Position Sensor is part number: ZC427.
 - ii. Calibration is needed after position sensor is replaced and to insure proper calibration. (Press “System Setup” then “Left” twice to Position Sensor settings. Arrow “Down” and Press “Enter” then “Enter” to calibrate)



c. **STEP 3 – Check Settings**

- i. **Position Sensor Alarm/Settings** (Press “System Setup” then “Left” twice to Position Sensor settings. Arrow “Down” to settings) – Is it attached to the correct inlet? Is the Out of position alarm enabled? (If “No” then no alarms will alert you to a problem) Is an appropriate value set for percentage out of position for alarm to occur?



- ii. **Ceiling Inlet Settings** (Press hotkey next to toggle switch then arrow “Down”) – Does the full opening size match what is measured with a tape measure? Do

the full open/close times match those timed with your phone stopwatch? Try using a daily resync time of day to keep position in calibration.

