



PROCESS INSTRUMENTATION

SIPART PS2 Digital Positioner used on feedwater valve

www.usa.siemens.com/positioners

A large power producer in the Northeast US has a four unit power generation plant that operates on demand, based upon bid price to the area ISO. Plant efficiency and speed of response is crucial.

The Siemens PS2 digital valve positioner is being used on a feedwater and startup valve for Unit #3.

The operations department fills the drum with the controls in manual mode. Startup procedures call for the operator to provide an output to the feedwater valve at a prescribed level. Repeatability and accuracy of the valve position in response to the controller output in "manual mode" is critical to the drum fill procedure.

The Siemens PS2 positioner replaces a competitor's analog I/P and a pneumatic input positioner. The PS2 unit includes a two-wire, valve position feedback transmitter to confirm the valve position to the operator in the control room.

The previous analog I/P and pneumatic input analog positioner did not provide repeatable valve positioning with the controller in "manual." The operations fill procedures called for an output to the valve of 50%. The plant experienced a slow fill that delayed their tie-in to the grid. Evaluation of the issue revealed that the valve was only at approximately 25% of travel. The existing analog devices in series



providing input to the valve position was “drifting” with changes in temperature and vibration. Recalibration did not solve the control problem.

The Siemens PS2 digital positioner provides accurate, repeatable control. This device replaced both the analog I/P and the pneumatic positioner, simplifying the control circuit and eliminating the components that were “drifting.” The PS2 unit also provides positive feedback indication at the control room.

The power producer selected Siemens PS2 positioners based upon several criteria, including, but not limited to:

- A history of using over 35 Siemens PS2 units on other difficult plant applications, including burner-mounted air damper drives, attemperator valves, and other applications
- Local representative, CKNs “Turn Key” on-site, technical support including design of replacement mounting hardware, on-site support for installation, configuration, and support of plant I&C personnel
- Siemens ability to provide a position feedback transmitter integral to the PS2 positioner
- Siemens proven track record for providing over 165 field transmitters for their Unit #4 DCS upgrade project

Siemens has been tested and compared with both traditional “analog” valve instrumentation and other competitive digital positioners. This customer prefers Siemens valve instrumentation.

A unique feature of the SIPART PS2 valve positioner from Siemens is its extremely low air consumption. In the balanced condition, the PS2 valve positioner consumes virtually no air. This results in reducing electricity costs by decreasing the usage of compressed air. Normal air loss in conventional position controllers can be very costly. The PS2 positioner design can save users over \$120/year per valve compared to using conventional smart positioners.

The SIPART PS2 electropneumatic positioner from Siemens is used to control the final control element of pneumatic linear or part-turn actuators. The PS2 positioner moves the actuator to a valve position corresponding to the setpoint. Additional function inputs can be used to block the valve or to set a safety position. A binary input is present as standard in the basic device for this purpose.

In addition to a standard auto-tuning feature, the PS2 will self-diagnose system changes and continue to optimize the tuning parameters in order to maintain valve performance, even with changes in actuator supply pressure and valve friction.



The PS2 valve positioner can provide communication capabilities through either PROFIBUS-PA™ or HART® protocols, and can also be operated through a Microsoft® Windows®-based HMI (human machine interface) with simple PC software. If manual operation of the valve positioner is preferred, simple configuration can also be accomplished using a built-in user interface with an intuitive menu structure, three pushbuttons and an LCD display.

Other features include user-defined ramping; user-defined, tight shut-off and full open settings; seven preset flow characterization curves with a 21-point, user-defined custom flow characterization; user-defined split ranging; and a universal shaft for linear or rotary applications.

Please contact a Siemens representative for more about the SIPART PS2 valve positioners.

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