

## **120. PNEUMATIC CONTROL VALVE STICTION DETECTION AND QUANTIFICATION**

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Pneumatic control valves are playing major role in the closed loop process control system. It is found in literature there are 20-30% (chodhury et al 2005) of process industries having limit cycle oscillations due to control valve nonlinearity which is the only mechanical device in closed loop process control system and deteriorate the end products. In the control valve stiction is the major nonlinearity problem than the other nonlinearities like backlash, hysteresis and saturation. This stiction nonlinearity causes the wastage of utility in the process industry. Recently there are so many methods to understand, define, model and detect stiction. Here for identification of stiction the Adaptive Neuro Fuzzy Inference Methodology have been used. For a vertical two tank level process with kano's model of stiction is considered to obtain necessary required data to formulate objective function. Here the ANFIS method simultaneously detect and quantify stiction. The work is being carried out in the MATLAB/SIMULINK platform.

Keywords— ANFIS, Control valve, Dead band, Stiction, Nonlinearity.

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