

A sensor fault detection scheme using a semi-independent process model

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ABSTRACT

Process model based fault detection systems are investigated. The use of the model prediction error, as the residual for fault detection of actuator, component and sensor is analyzed. It is found that dependent model based fault detection system are not capable of detecting sensor faults. A fault detection scheme using a phase-delay method is proposed, which is equivalent to a semi-independent process model. Simulation study is carried on a simulated chemical reactor and results are presented to demonstrate the effectiveness of this approach.