

Smart Positioner Maintains Unit Operation During Feedback Interruption to Prevent Combustion Turbine Trip

POWER

Background

While performing diagnostics using an online AMS (asset management system) at a combined cycle power plant, Control Southern discovered a valve that had entered pressure fallback mode. The change to this mode was caused by feedback interruption in the FIELDVUE™ digital valve controller. The change to pressure fallback mode allowed the valve to continue operating, preventing a possible trip of the Unit 1 combustion turbine and a potential loss of around 350 MW.

Feedback Signals

The FIELDVUE digital valve controller is a smart positioner, meaning that it accepts an electrical signal and converts it to a pneumatic output to the valve. It monitors and adjusts the valve's position in response to a feedback signal.

Pressure Fallback Alert - This alert is active if a travel sensor failure gross travel deviation has resulted in fallback to pressure control.

Pressure Fallback Alert Enable - When enabled, Pressure Fallback Alert Enable activates the Pressure Fallback Alert.

Pressure Fallback Active Alert - This alert is active when the instrument has detected a problem with the travel feedback.



DVC6200 smart positioner

Results

When evaluating the financial benefits of having the smart digital valve controller with Pressure Fallback capabilities, Control Southern assumed the following conditions:

350,000 kilowatt potential loss X \$0.08 rate/kilowatt hour X 1.5 hour duration of trip

Total Cost of a Single Trip Event = \$42,000