



HIGH ACCURACY GAS FLOW MEASUREMENT

BACKGROUND

A major gas-fired power station required the replacement of ageing differential pressure transmitters installed on the gas inlet pipeline. The measurement formed part of the station's DCS control system, providing a secondary flow measurement independent from the custody transfer system, which utilised a gas turbine flow meter.

SIEMENS

Flow measurement was achieved using an orifice plate arrangement with dual transmitters, configured for both high- and low-flow conditions. Maintaining accurate, repeatable measurement performance was critical to ensuring stable, efficient plant operation.

CHALLENGE

The existing transmitters had become unreliable over time, with measurement drift occurring between calibration intervals. This resulted in reduced confidence in the readings used by the control system and increased maintenance concerns during planned outages.

The power station required a replacement solution that would:

- Fit the existing isolation manifolds without major modification
- Deliver high measurement accuracy across both low and high flow ranges
- Provide long-term stability with minimal drift between calibrations
- Meet the site's stringent safety and hazardous area requirements

Reliable repeatability was essential to maintain effective DCS control and ensure continued operational efficiency.

SOLUTION

We supplied and commissioned two Siemens SITRANS P420 intelligent differential pressure transmitters, selected for their high accuracy, long-term stability, and proven performance in critical gas flow applications.

The transmitters were supplied fully factory-calibrated to UKAS standards and featured both Functional Safety certification to IEC 61508 SIL2/3 and ATEX approval for hazardous area installation.





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The application utilised:

- One low-range transmitter calibrated from 0 to 30 mBar
- One high-range transmitter calibrated to 540 mBar
- Measurement accuracy of $\leq 0.075\%$

The new instruments were installed directly onto the existing manifolds, simplifying replacement and minimising downtime during installation.

RESULT

The replacement transmitters have now been operating continuously for four years and continue to perform flawlessly. As part of the power station's annual outage maintenance programme, the instruments are recalibrated each year and have demonstrated zero measurable drift since installation.

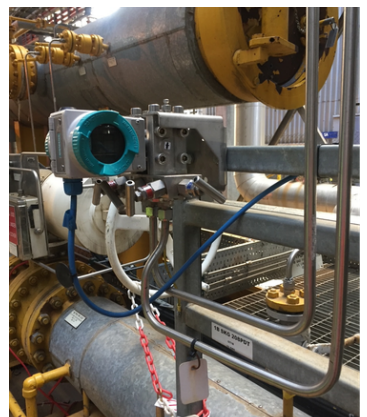
The improved measurement stability and repeatability have provided the power station with a highly reliable flow measurement solution for its DCS control system, ensuring accurate process control and reduced maintenance concerns.

By delivering long-term accuracy and dependable performance, the solution successfully met the station's operational and safety requirements for this critical gas flow application.

EQUIPMENT SUPPLIED

Siemens SITRANS P420 Differential Pressure

Siemens SITRANS P420 Differential Pressure is the first pressure transmitter on the market to feature remote safety handling. The devices are suited for applications where safety is critical: in industries such as chemical, oil and gas, and power generation.



Andy Hazlewood
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