

Permanent series connection in a supply station

Ever greater importance is being attached to sound consultancy at the project planning and implementation phase in the field of gas measurement and control engineering. As a special service, Elster-Instromet's Project Team offers competent, comprehensive support. We present the following example as practical evidence in support of this claim.

Due to the steady decline in low-calorie natural gas of our production from the Salzwedel area, there is a need to import high-calorie gas. This has called for considerable system conversions or replacements – in at least some cases. The task facing Erdgas Mittelsachsen GmbH was to set up a new system for measuring the imported gas.

Towards this end, the following peripheral conditions and technical requirements were jointly established and defined in a specification sheet:

- > Inlet pressure OP: 30...45 bar
- > System inlet: DN 150, DP 70
- > Medium: Natural gas H
- > Flow rate Q_n : 34,000 Nm³/h
- > Permanent series connection consisting of turbine gas meters and ultrasonic gas meters



Fig. 1: Side view

- > Observation of half the calibration error limit $\leq 0.5\%$ ($0.2 Q_{\max} - Q_{\max}$)
- > High-pressure calibration; checking of both meters on the same test bench and on the same day
- > Compliance with requirement for closely matching readings (meter comparison $< 0.5\%$)
- > State volume correctors with DSfG interface and with integrated recording and remote data transfer
- > Minimising pressure loss
- > Conversion, recording and provision of all data for the partners involved
- > Compliance with all EU Directives, regulations and standards, including the primary supplier's factory standards

A system structure was decided on, on the basis of the preconditions developed, as per Fig. 2.

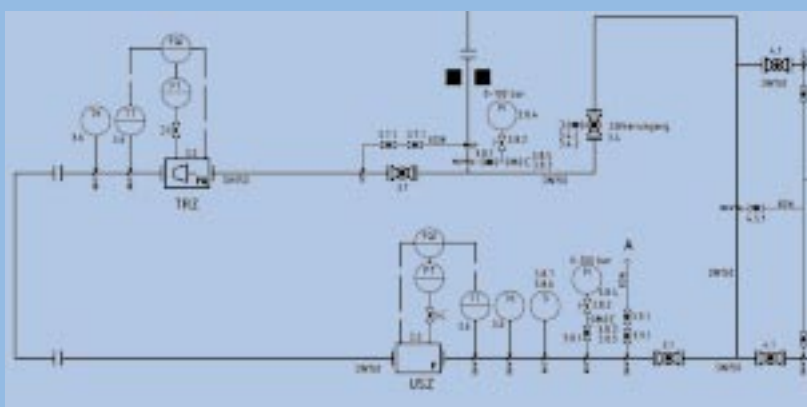


Fig. 2: Extract from the regulator and piping diagram

The system concept was realised as follows:

- > Measurement, turbine gas meter, SM-RI-X type with Absolut ENCODER S1 in series with an ultrasonic gas meter of the Q.Sonic-3C type.
- > HP calibration on the pigsar test rig (both measurement systems calibrated on the same day, same test-bench conditions for both meters).
- > Two state volume correctors, gas-net type devices, Z1 with DSfG interface and with integrated recording and remote data transfer; k-value calculation as per AGA 8 possible, use of Rosemount R 3051 CA pressure sensors.

All components were planned, calibrated and supplied by Elster-Instromet. This produces clear-cut advantages in terms of the coordination and measurement uncertainty of the entire system, as well as interface functionality. The measurement paths were arranged one above the other, maximising their visibility and accessibility within a compact space.

The fact that the meters and the system as a whole are so compact allows the operator optimum access conditions. Apart from the technical aspects, this also means that the regulations covering accident prevention and health and safety are given the necessary consideration. All signals and parameters required for operation or invoicing are provided with absolute reliability, being made available to the power station's control system, the operator EMS and VNG AG, as the primary supplier. Maximum accuracy and availability of process and recording data are guaranteed with the effective application of this device technology and the way it is arranged.

A satisfied customer

With the assistance of our Project Team, it was possible to set up a complete measurement path in the shortest possible time. All of the requirements for a modern, highly accurate and functional measurement system were fulfilled. All parties involved, Bohlen & Doyen of Leipzig, who carried out the planning and installation work, Elster-Instromet GmbH as project consultant and supplier of the measuring technology, and the operator maintained permanent lines of contact with each other, thus guaranteeing the outstanding work which ensured that this station was completed within the set deadline.

This project provides a good example of a solution for a complicated task – from initial consultancy through to commissioning.

If you feel you, too, could benefit from our consultancy services, just pick up the phone to your designated contact.