



APPLICATION REPORT Oil & Gas

Upgrading gas receival stations with standardized electrical cabinets

- Replacing electronic volume converters with modular MI-002 flow computer cabinets
- Cost-effective flow control and data transfer cabinets for a future-proof pipeline network
- Ready for alternative gas mixtures, e.g. natural gas and hydrogen mixtures
- Reduced installation costs at minimum downtime: Up and running within one day



1. Background

Gasunie is a gas infrastructure and transport company with a pipeline network of over 15,000 km in length in the Netherlands and Germany. With a throughput of approximately 125 billion m³ per year, it is one of the most extensive high-pressure networks in Europe. Gasunie Transport Services (GTS) is the subsidiary that manages the Dutch part of the Gasunie network.

2. Measurement requirements

To upgrade their metering systems and replace the EVCD (Electronic Volume Conversion Device) in part of their 1200 custody transfer gas receival stations, mainly city gates, GTS was looking for a tailored, cost-effective MI-002 approved solution. The solution was to be equipped with standardized components, refraining from superfluous hardware to minimize on costs for spare parts and service training as well as to keep installation costs and downtime to a minimum.

Further key design requirements for this solution included:

- Modularity: to accommodate 2, 3 and 4 flow streams per cabinet
- Flexibility: to allow for alternative gas compositions, e.g. biogas and hydrogen-injected natural gas
- Ethernet communication capability and smart meter connectivity
- Ease of verification and periodical recalibration of the entire metering system



Gasunie infrastructure in the Netherlands



3. KROHNE solution

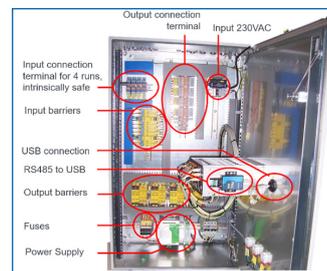
Based on a European tender, GTS selected KROHNE to upgrade their EVCDs. To minimize on-site installation work and downtime, KROHNE, in close co-operation with GTS, designed a standardized, modular data transfer cabinet with the SUMMIT 8800 flow computer as its core element.

The full-color touch screen of the flow computer shows a graphical representation of all key instrumentation and important measurement data. Since each metering stream runs on a dedicated electronics board slotted in the back of the SUMMIT 8800, it resulted in a cost-effective solution, avoiding unnecessary hardware.

Each cabinet has been equipped with an identical 230V power supply, input and output barriers, connection terminals and a fuse box. The only variable is the number of metering streams that can be connected. Due to the modular set-up, each cabinet supports 2, 3 or 4 streams.

In the front panel a USB key has been integrated which is used for periodical verification and calibration of e.g. pressure and temperature transmitters. The transmitters are connected to a dedicated calibration device that via the USB port automatically reads the calibration results directly from the flow computer. This means calibration is far less time-consuming and there is less room for error as compared to entering calibration values manually, which is no longer required.

The cabinets have been produced in small series. They were fully pre-programmed and tested prior to installation on site. As a result, the total downtime for decommissioning the previously existing cabinets has been minimized. Each new KROHNE cabinet has been installed in less than 4 hours. After installation, the cabinets were directly sealed as per MID MI-002, using KROHNE's module B and D approval.



Inside of a control cabinet with SUMMIT 8800 flow computer



Flow computer manufacturing at KROHNE in Breda, the Netherlands



KROHNE control cabinets ready for shipping

4. Customer benefits

The standardised flow computer and data communication cabinets offered GTS a cost-effective solution to upgrade their gas receival stations. The similar design of the cabinets means minimised spare parts and less operator training required. Having been equipped with state-of-the-art digital communication and made ready for alternative gas mixtures and hydrogen, the cabinets helped the customer make their pipeline network future proof. As an experienced solution provider to the oil and gas industry, KROHNE covered the whole design, manufacturing and testing process including approval management, delivering the control cabinets and flow computing equipment from one source.

5. Solution and product used

Modular flow control and data transfer cabinets

- Cost-effective, modular metering control solution
- Fully wired, preconfigured and tested
- Engineered to customer specification (incl. CT approvals etc.)

SUMMIT 8800

- Flow computer for custody transfer (CT) measurement

Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
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Please visit our website for a current list of all KROHNE contacts and addresses.

