



High Pressure Area

The dual challenges of Hungary's entry into the EU and the deregulation of its domestic market made it necessary for the Hungarian gas supplier MOL to meet the quantitative and qualitative demands that resulted from the dynamic growth on the natural gas market.

These dynamic market changes opened the door for Tartarini Hungary Ltd. to make significant investments and developments.

The automation department at Tartarini was founded in 2003, with the product range expanded to include e.g. compact controllers, controller systems, and measuring instruments. This allowed automation solutions, electrical planning, and even complete commissioning to be provided. In the area of gas transport for the Hungarian oil and gas company MOL, controller systems and RTUs are being used that can barely keep up with today's demands, and they certainly won't be in any shape to handle demands made in the future. For this reason, additional developments were necessary that would incorporate all 400 stations of the Hungarian high pressure gas transport network. The primary goal was to replace the existing communication system with a high-speed data exchange system with a data transfer rate of at least 64 Kbit/s. The Modbus TCP/IP protocol via Ethernet was selected for this reason. In addition, the new TM station wasn't set up just to carry out local controller tasks, but as a portal for local

equipment as well. This means that all intelligent external equipment like volumetric flow calculators and chromatographs are connected to the TM station via Modbus TCP/IP. The TM stations collect their data and pass instructions received from the SCADA center on to the external equipment. Local controller tasks include heat and pressure regulation, automatic control of valves according to gas flow, and the execution of instructions received from the SCADA center. In addition, the new TM station must be equipped with a local user interface that allows its operators on-site control and provides an overview of the current status of the entire station.

Programming without limits

Tartarini Hungary Ltd. and NG Project Ltd. developed the software for the TM project. Csaba Kovács, manager of the programming team, reports: "High-level programming languages, deterministic multitasking, flexible memory management, dynamic data access, and the possibility of writing custom function blocks allowed us to create an object-oriented framework that was both configurable and flexible. This framework is now used for all application

programs that we write. When programming, we didn't run up against any limits with regard to storage or computing capacity. We were even able to write our own configurable Modbus TCP/IP communication protocol, irrespective of the data formats that we receive from the various equipment connected to our system."

New hardware for modern day demands

In the first year of the project, more than 70% of the installed TM stations were equipped with the solution from B&R and Tartarini. Future plans call for a substantial part of the remaining 240 stations to be equipped before the entire project is complete.

At the same time as the TM project, Tartarini Hungary developed their own volumetric flow calculator, the BaRflow-04. The primary goal here was to have the entire instrumentation for a gas distribution station in one place. The flow calculators currently being used in Hungary are based on technology that is at least 20 years old, which made a new solution a necessity. B&R was the right partner for this project




Wolfgang Perschl (Sales Manager B&R, left) and Istvan Gaal (Managing Director Dial-Comp Ltd.) in front of the successfully implemented TM-Station.

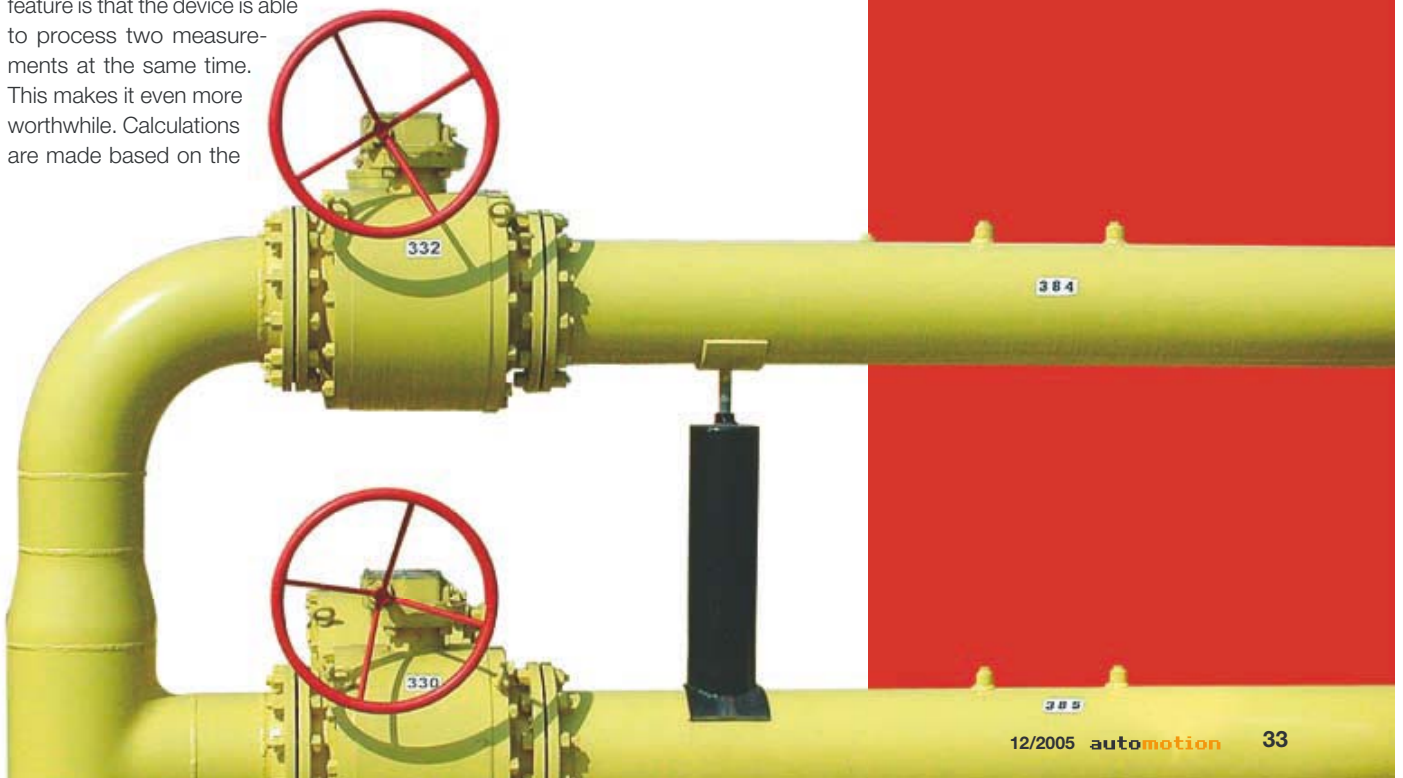
as well. They helped develop new hardware in keeping with the demands of Tartarini Hungary. This new hardware is based on a Power Panel and uses ETHERNET Powerlink to connect the I/O system. This OEM hardware is designed as a 19" insert with a 5.7" color display (with buttons) and a user-friendly operator interface. RS232 and Ethernet interfaces are available for communication.

The major advantage of the BaRflow-04 is its parameter-based program, which allows the user to assign any function to each I/O point or to configure the communication protocol and registers. This guarantees compatibility to every other volumetric flow calculator. By default, the flow calculator uses Modbus TCP/IP or ASCII/RTU instead of the RS232 communication protocol. Another important feature is that the device is able to process two measurements at the same time. This makes it even more worthwhile. Calculations are made based on the

latest EU standards.

Thanks to the powerful hardware, the exact flow amount is displayed in real time for the calculations. 

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Dial-Comp Ltd.

Dial-Comp Ltd. was founded in 1992 shortly after the political upheaval in Hungary. This was a difficult time economically because of the political pressure blocking connections to traditional markets in Eastern Europe. However, the industry was not yet capable of meeting the quality requirements for the Western markets. The tool machine industry, the foodstuffs industry and the farm machine industry, which were previously the driving force behind the Hungarian economy, came to a complete standstill.

The main goal of the new company was to sell B&R products and provide efficient technical support, both for the hardware and also for the programming software. A decision was made at the very beginning: no direct participation in the installation. That placed the company in competition with their own partners. The idea was to provide double the benefits. On one hand, Dial-Comp was able to provide these partners with projects, and on the other hand, these partners started using B&R products for their other projects.

The breakthrough came in 2003 as they became partners with Tartarini Hungary Ltd. Tartarini had already completed machine manufacturing projects in this area when MOL Plc. decided to not only upgrade the gas transfer stations, but to also install new sophisticated telemetry/RTU systems.