

APPLICATION OF GPRS TECHNOLOGY IN BELGIUM

Elster-Instromet products fulfil future-oriented requirements

Following the opening of the gas market in Belgium, new requirements have been established for the metering of natural gas and the transmission of data. At the end of 2003, it was obvious that for main customers, it would be necessary to send information about consumption to the headquarters every hour.

To be ready to fulfil these new requirements, in December 2003, Netmanagement initiated some technical meetings with the main suppliers to define the specifications. Cogégaz, with the support of Elster-Instromet, was involved in these meetings. The goal was to get the whole system working on 1st November, 2004. Only nine months to write the specifications, develop new products, test the prototypes and to install the systems was a considerable challenge. Some suppliers decided to pull out of the project but Elster-Instromet together with Cogégaz decided to accept the challenge.

For the volume corrector and the data logger, the EK230 was the most suitable product. It was easy to adapt to customer requirements and the incorporated data logger was a big advantage. A separate data logger doesn't always get all the information from the volume corrector and time synchronization between the 2 devices is always a problem.

Since it was necessary to get information every hour and because of the number of stations that had to be reached at the same time, the GPRS technology was selected. After this, it was necessary to choose a communication protocol and the decision was to select and adapt the existing IEC1107 protocol (IEC 62056-21). This protocol will run through GPRS communication channels with what is known as a "tunnelling solution". It offers permanent access to current or hourly data as well as historical data from archives. It also allows applications with additional service software directly in the selected volume corrector, if required. The whole communication system from the station to the users in the headquarters has to be protected as a part of a utility network and uses the security infrastructure and mechanisms of a virtual private network (VPN).

The measuring system had to work with an external 230 VAC power supply but also with solar panels and a rechargeable battery where a main power supply is not available. Elster-Instromet has developed a function extension unit FE260 with 12 VDC power supply and an alarm indicating low power supply. Because of the need to connect a computer to the system outside the hazardous area, an optical interface was also added to the FE260. Various software functions in the EK230 were adapted to meet the requirements of Netmanagement with regard to communication protocol, archives, status, alarms, display, etc..



Fig. 1: The electrical cabinet installed near the gas stations, outside hazardous area



Fig. 2: The EK230 – the most suitable product for this application



Fig. 3: The FE260 with power supply and backup battery

At the beginning of February 2004, we participated in a meeting in Brussels with Ferranti (the company which developed the software to communicate with the devices) to define all the parameters of the data within the IEC1107 protocol. On 1st April 2004, we received an enquiry from Netmanagement for 120 systems. The deadline for the quotation was the 14th April. A great effort was made to present all technical information, user manuals etc. for devices that were still under development.

At the beginning of June, we received the contract to supply 120 systems to Netmanagement. 90 systems had to be in operation on 31st October 2004. So, we had 5 months to finalize the development, get all the approvals, test the prototypes, manufacture the devices and complete all the installations on site. And what's more, the vacation period was also included in this time.

We installed the first system on site on 15th June and we also began the communication tests with Ferranti at the beginning of June. We had to get all the approvals. After some improvements to the prototypes and the manufacturing of a first batch of devices at the end of July, we started the installations on site. On 29th October 2004, all the systems were working and the goal had been achieved.

This project shows that the best way to innovate new future-oriented technologies like GPRS is to realise them in accordance with concrete customer requirements. Furthermore, it shows that the current product portfolio from Elster-Instromet is flexible and can be adapted in a short time in order to fulfil the latest requirements. Last but not least, the good and effective cooperation and the coordination between Elster-Instromet und Cogégaz was a decisive factor in the successful completion of this project. For the success of our customers, we like to take up new challenges.