

Automated meter reading (AMR) takes off

A practical example from Switzerland

The structure of the energy supply market in Switzerland can be outlined with reference to the following facts: there are over 7.5 million inhabitants, more than 350 multi-utilities, and 1100 electricity, 110 gas and over 3000 water supply companies. The trend towards automated meter reading is growing from year to year. The pioneers here have often been innovative local community suppliers, such as Seuzach in the Canton of Zurich, a community of 6600 inhabitants which as long ago as the year 2000 decided on a system involving the existing meters being read by mobile radio.

GWF MessSysteme AG – Elster-Instromet's partner in Switzerland

Set up in 1899 as a subsidiary of Handelsgesellschaft Elster & Co., to this day GWF represents the Elster-Instromet range in Switzerland. In addition, GWF also markets the Class C multi-jet water meters which are also manufactured there. Since 1997, GWF have been supplying these meters with the Absolute ENCODER index. GWF's earlier ENCODER customers for the most part took their first steps towards AMR in the form of inductive reading via a wall module (touchpad). In 2000, the community of Seuzach became one of the first GWF customers to go for the combination of the Absolute ENCODER and mobile radio meter reading.

Automated meter reading in Seuzach (Switzerland)

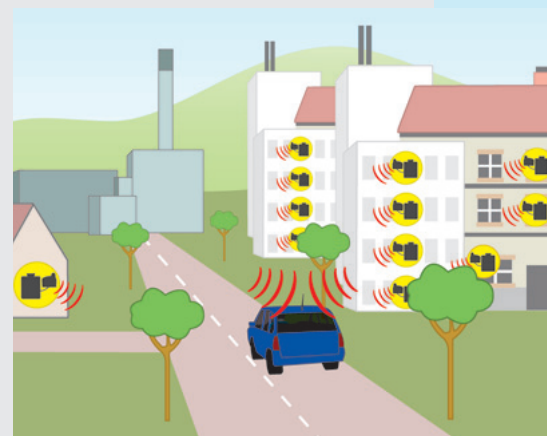
At present, the community of Seuzach reads its 1100 meters in a convenient operation using a moving car (drive-by procedure). The next steps towards extending the system are under way. By 2009, the entire meter park (1500 meters) will be read by radio. With the radio reading system installed by GWF, one person is able to obtain accurate readings from the 1100 metering points in a single day. This represents a massive increase in efficiency. When meters were being read manually, it took two meter readers each

working for two weeks to collect the same information. Another problem here was that even after two weeks' work, only about 95% of the meter readings had been obtained, for example because of customers being away for long periods of time.

The remaining 5% of readings involved tedious donkey work, until the routine tasks recurring every year were finally completed.

Automated uninterrupted data chain saves time

To prepare for mobile reading, the billing system delivers the raw data, such as the address and meter number to the readout device. The process of drive-by reading can now begin. The reader drives along the stipulated route, with the radio receiver gathering in the meter readings in a very rapid, accurate procedure. The meter readings are then automatically assigned to the relevant customer by the GWF software in the readout device. The new meter readings are then transferred back to the billing system, along with the existing customer data. Billing can now be carried out without delay, on the basis of this end-to-end data chain. In this way, the possibility of reading and input errors is excluded.

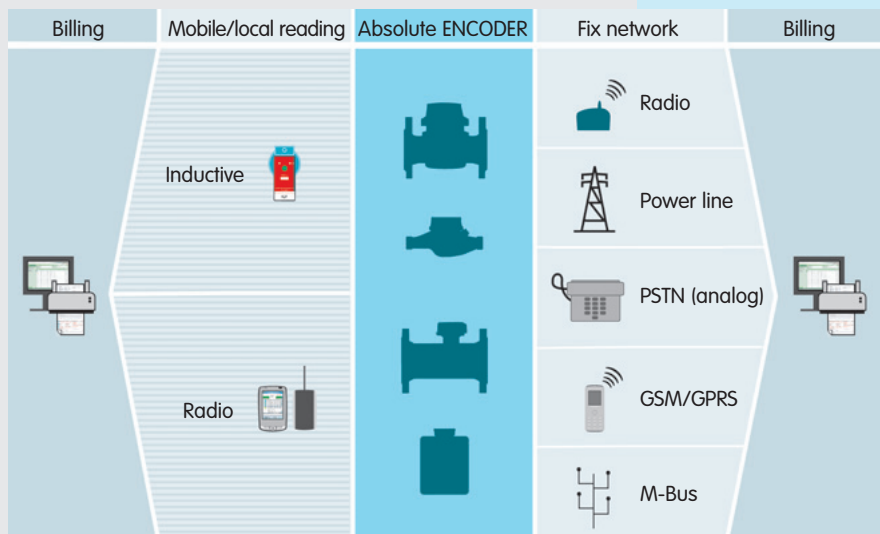



Convenient recording of the meter reading when driving by

No discrepancies in meter readings with the Absolute ENCODER

With systems based on radio or remote meter reading, the expense involved in having a responsible person having to read the meter at the metering point and capture the data is eliminated. However, this assumes that the remote meter reading exactly corresponds to the effective reading on the actual meter. This is of crucial importance if the automated reading process is to find acceptance. GWF fulfils this important requirement with its tried-and-tested Absolute ENCODER technology which can be used in both water and gas meters. The Absolute ENCODER consists of a conventional mechanical index with a

data interface. The technology is based on opto-electronic scanning which identifies the position of the individual rollers on the mechanical index in a contact-free process. In this way, the entire meter reading (the "absolute" meter reading) is transmitted via the data interface along with additional information, such as the number of the meter, for example. This technology ensures error-free transmission of the meter reading without any discrepancies, feeding it into the data chain and delivering a much higher information content compared with pulse interfaces and, above all, completely accurate readings. Operation of the Absolute ENCODER requires neither a battery nor an individual power supply, as the power required for reading is supplied by the connected device. These



With the Absolute ENCODER it is possible to change from mobile to fixed-network meter reading



Data is transferred from the PDA to the billing system

positive effects result in a significant reduction of operating and process costs as a whole.

Simple installation saving time and money

The radio module can be connected directly to the ENCODER index. No time or expense is required for setting parameters prior to commissioning. Water or gas meters equipped with the Absolute ENCODER can also be connected to a radio module or to some fixed-network

meter reading infrastructure at any time in the future, using a plug & play procedure which does away with any additional costs involved in parameter setting. As meters are in place in the network for several years (in Switzerland typically between 10 and 15 years), this produces the necessary security of investment. In Seuzach, since 2005 this has seen a more powerful generation of radio equipment put into use, without having to exchange or configure the meters.

Strong trend towards automation

The demand for modern meter reading systems is great, especially as access to premises and metering points is becoming ever more difficult, reading costs are constantly rising and the processing of the manual, conventionally-read data is very time-consuming. Even the system of self-declaration (with the customer taking the reading) and returning a card is increasingly coming to represent a burden on the supplier. The market is calling for reliable and rapid data transfer.

Prompt billing is what will count in the future

Today, major Swiss multi-utilities such as IWB Basel, Services Industriels Lausanne or Services Industriels Genève form part of GWF's ENCODER customer base. There are more than 150,000 gas and water meters installed in Swiss supply networks with ENCODERS incorporated in them.

The EU Directive on Energy Efficiency calls for suppliers to ensure that effective energy consumption is invoiced without delay, i.e. that the frequency of meter reading is distinctly increased, even for private households.

Meters fitted with an Absolute ENCODER provide the basis for frequent automated reading, to the extent of values being identified for the day or even hour.

Urs Aschwanden urs.aschwanden@gwf.ch
 Chris Bold chris.bold@gwf.ch
 Stefan Christen stefan.christen@gwf.ch