Remote transmission of consumption volumes in water supply networks using mobile technology via SMS relay

- Secure remote transmission of measuring and diagnostic data such as flow, conductivity, flow speed, pressure, temperature etc.
- Easy communication via SMS/email or ODP remote protocol via mobile phone

Water supply networks often cover an extensive geographical area. Buildings such as measuring shafts are therefore usually located in difficult to reach areas. Data and control cables for connecting the buildings have also not always been installed with the construction of the water pipeline, since in the past mechanical water meters were used for measuring the volumes. Due to their technical limitations, these water meters had to be readout manually by operating personnel.

In order to reduce the operating costs of water supply plants, more and more savings are unfortunately being made in the area of personnel. In addition, operators nowadays require highly accurate and innovative water meters, which are wear and maintenance-free and can be read remotely. Existing control and data cables are now often in such poor condition that they cannot be used for modern communication technologies.

Drinking water is essential to life, which is why the supply of drinking water is one of the most critical infrastructure sectors. Secure data transmission and communication with the control room is therefore essential.

Process solution:

For the high-precision measurement in drinking water distribution networks, operators are nowadays relying more and more on innovative electromagnetic water meters which are wear and maintenance free. Thanks to a special flow-optimised measuring tube, these water meters can be installed without the need of straight inlet and outlet sections. Measuring data such as flow, conductivity or even pressure and temperature is transmitted wirelessly by means of a TC mobile XC200/300 SMS relay. With the XC 300, there is also the possibility to transmit data via ODP remote control protocol and send the data directly to the majority of control systems.

The SMS relay takes over the function of collecting the data of the measuring devices. Up to two analogue signals (e.g. 4-20mA) and four digital inputs can be read, as well as four switching outputs controlled.

Various operating modes are available such as SMS by changing the value of an input, or also the querying of all values remotely. The water meter can be connected directly to the SMS relay.

Since communication to the control room is made possible via mobile phone/Internet, a secure connection is essential. This is ensured through the use of VPN technology and the IPSec security protocol as
Customer benefits:

- Secure data transmission from the field to the control room
- Energy self-sufficient complete solution – from the water meter to remote data transmission
- Integration into all common control systems using standardised OPC (XC300) telecontrol protocols
- Transmission of up to two analogue measured values such as flow rate, meter reading, flow speed, conductivity, pressure and temperature as well as diagnostic values
- Transmission of additional digital information, such as intrusion detection systems, flood protection etc.

In manholes without power supply, self-powered water meters with battery supply can also be used. The SMS relay can also be powered by an external battery. A pre-engineered solution in a small housing is available on request.

Products used:

- WATERFLUX 3000 with IFC 070 (battery powered), IFC 050, IFC 100 or IFC 300
  - Installation without straight inlet and outlet lengths
  - DN 25…400
  - Measurement of flow, conductivity, pressure, temperature, flow speed and other diagnostic parameters (depending on the amplifier)
  - Pulse, status, analogue or bus communication (depending on the converter)
- Mobile communications technology
  - TC Mobile XC 200 / 300
- Waterwork internet connection
- ADSL router/modem
- Ethernet security
  - M-Guard