

Ultrasonic flow measurement with FLUXUS®

Water and Wastewater Solutions

Versatile. Economic. Leak-free.

Drinking water supply

Network monitoring and balancing

Leak detection

Wastewater disposal

**External measurement
of internal flow**

FLEXIM
when measuring matters





The flow of water brings revenue

Sustainability and responsibility are two ways that AWWA M-36 reminds us that every drop of water pumped out of the ground, or collected in a reservoir comes at a price, and brings potential for revenue.

Local governments are being called to effectively manage our water resources. An audit process with accurate flow measurement is a leading method for ensuring sustainability in our drinking water systems.

Additionally, municipalities are rushed to find new revenue sources. Accurate flow measurement is extremely important when it comes to ensuring that every drop is accounted for and improving revenue streams.

FLEXIM offers the most reliable measurement system for water production, treatment and distribution

Withdrawal of drinking water usually begins at wells and large water tanks. Pipes with large nominal diameters carry the extracted water and passes them on to the local distribution system.

Large nominal diameters also mean high costs for wetted measuring systems. This isn't the case with a FLUXUS® ultrasonic non-intrusive flow meter, which is much less expensive than a magnetic inductive flow meter at most common pipe sizes, and can also be retrofitted during ongoing operation and without the additional cost of engineering work and pipe work.

Moreover, Magnetic flow meters often show inaccurate readings as conductive material from the ground water deposits on the electrodes of the meter, soometimes causing substantial under-reading of the flowrate.

Common applications in the water and wastewater sector

- New plant construction
- Retrofits on existing pipes
- Replacement of Venturi's with limited turn down
- Replacement of mechanical meters with bearings
- Replacement of magnetic inductive meters with mineral build-up
- Distribution system monitoring and water balancing
- Pump performance verification
- Leak detection and water loss prevention
- Flow control for chemical feed and demand
- Sewage collection, treatment and re-use
- Measuring system for emergency circuit control of valves
- Flow direction indicator



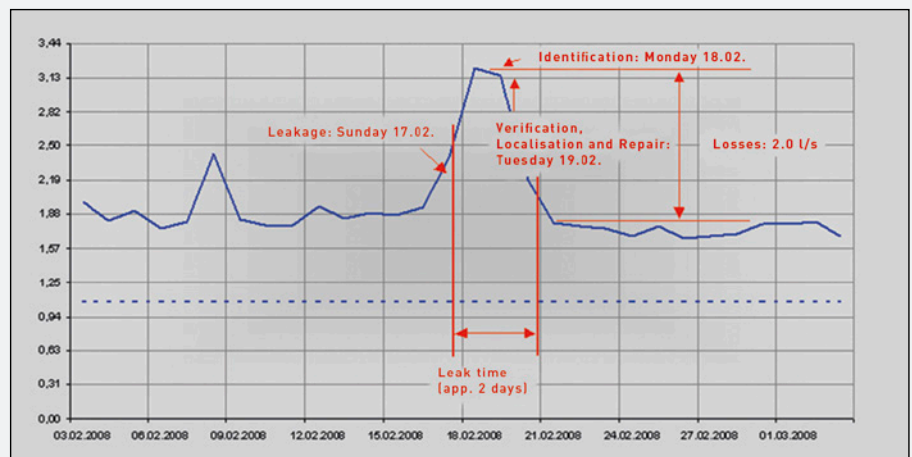
Advantages of FLUXUS®:

- Unparalleled accuracy and repeatability
- Extremely easy to install - no downtime necessary
- Permanent and maintenance-free external flow measurement
- Highly versatile - installation on pipes ranging from 1 to 120 inches
- Simple and cost-effective retrofitting on existing pipelines - huge cost advantage to other meter technologies
- High measuring dynamics - captures low and high flow rates
- High zero point stability - drift free measurement - no measurement dropouts
- Calibration is done at the factory - no need to obtain zero flow at site
- Highly hygienic: no direct contact between the measuring system and the medium
- Resistant to pipe wall scaling - strong signals even on old or glass fiber pipes
- Able to measure pulsating flows for accurate chemical dosing
- Virtually no straight pipe run required due to individual mounting configuration, compensating uneven flow profiles
- Resistant to deposits on the pipe wall
- Safe and durable underground operation by means of IP68 / NEMA 6P transducers and the PERMALOK mounting fixture

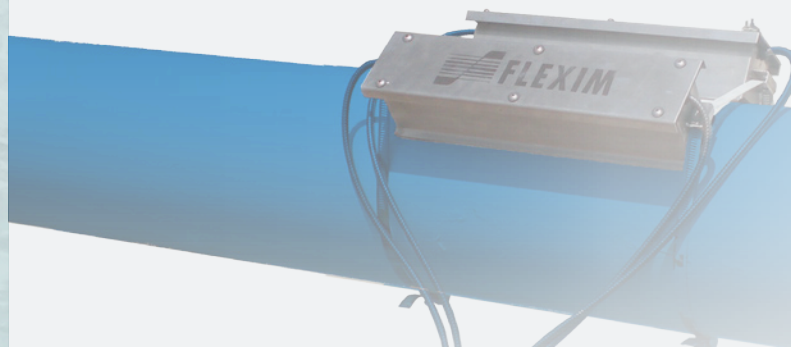
Detecting substantial pipe breaks and small leaks

In order to identify real water losses promptly, the inflows of a supply system must be monitored constantly.

Pipe ruptures, which require rapid isolation of the particular pipe section, can easily be identified by abnormal changes in flow behavior using appropriate measurement techniques.



By using matched transducer pairs and a unique measurement algorithm for signal evaluation, the FLUXUS® can detect very large and very small amounts of flow with very high precision. With many miles of pipeline in a municipal water or wastewater system, small leaks that are otherwise undetectable can be pinpointed quickly with the FLEXIM family of meters.





Case study: Underground flow measurement points on drinking water lines

A considerable amount of work and effort is often involved when it comes to retrofitting existing pipelines of a drinking water supply system with flow measurement devices:

In order to install a conventional magnetic-flowmeter, civil engineering work must first be carried out to expose the pipeline. Further, the pipe must be shut off for the installation which means an interruption of supply.

In addition to its non-intrusive advantages, ultrasonic flow measurement is already an established standard measurement technology in the water sector. The compact and extremely sturdy IP68 clamp-on ultrasonic transducers are simply attached to the outside of the pipe.

The site only has to be exposed for a short time in order to access the supply pipeline and is then back filled immediately after installation. Permanent acoustic coupling and therefore maintenance-free measurement is ensured by the extremely solid PERMALOK mounting fixture. Advanced monitoring systems use the FLUXUS® ultrasonic flowmeter as a measurement source, where the data is transferred to the process control system via a mobile radio link.

Advantages:

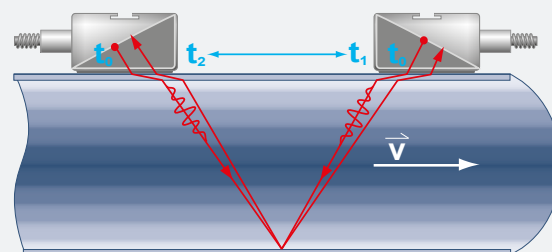
- Reliable non-intrusive flow measurement
- Durable measuring device with IP68 transducers and robust mounting fixtures
- Underground installation without any expensive vault construction

The ideal solution for wastewater collection, treatment and reuse

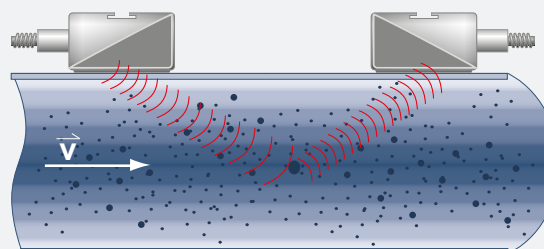
With the constant expansion of sewage treatment plants and more stringent requirements for advanced wastewater treatment, operators are in search of reliable ways to retrofit their piping systems. Non-intrusive flow measurement with FLUXUS® ultrasonic flow meters has proven to be a very good and cost effective alternative to all other technologies used for wastewater flow applications.

Normally, the volume flow rate is determined based on the transit-time difference method. The accuracy achieved is unrivalled.

Transit-time difference method in the event of low solids content



In media with higher solids content (>10%) such as sludges, where the ultrasonic signal becomes attenuated, FLUXUS® automatically switches to the integrated Hybrid Trek Mode in which the frequency shift of the ultrasonic signal is measured by the particles floating in the liquid and ensuring still an accurate and reliable measurement.



Automatic shifting to NoiseTrek mode in the event of high solids content

Offering unparalleled performance and versatility



FLUXUS® F401

FLEXIM meters offer a precise bidirectional flow measurement over a wide turn-down ratio. This is especially important at low flow velocities during off peak times. The unique ability to measure extremely low flow and achieving the best zero stability on the market is due to carefully matched and paired transducers and sophisticated algorithms for digital signal processing.

In conjunction with the IP68 / NEMA 6P transducers, permanent pipe wall coupling materials and highly rugged mounting fixtures, FLEXIM offers virtually maintenance free, cost effective, and long term stable flow measurements

For temporary meter checks and audits, FLEXIM offers the FLUXUS® F401 and F601 portable meters. The FLUXUS® F401 is expressly designed for serving common applications in the water and wastewater sector plants. It is capable of measuring at line sizes from 1 to 120 inches with NEMA 6P transducers and a NEMA 6 protected transmitter suitcase. It offers over 24 hrs. of remote measurements that can be extended up to 7 days with an additional battery suitcase.

The FLUXUS® F601 is the portable meter for industrial environments allowing the flow measurement of virtually any liquid media. These meters are ideal for existing meter accuracy verification and water loss studies.

For permanent installations, FLEXIM engineered the FLUXUS® F501 and F721 series. The FLUXUS® F501 is the ideal solution for any water and wastewater applications from line sizes between 1.5 to 12 inches with particle loads up to 6% content by volume. For bigger line sizes, higher solid contents (up to 10% content by volume) and any liquid medium within industrial environments, the FLUXUS® F721 series will best suit your needs.

The FLUXUS® F721 is also available as a special Low Flow meter engineered for accurate and reliable measurements of chemical dosing applications with line sizes ranging from 1/4" to 1" inner diameter and flow velocities starting from as low as 1 gal/h.



FLUXUS® F501



FLUXUS® F601



FLUXUS® F721

FLEXIM

In partnership



Water and wastewater treatment is an important factor in safeguarding water resources. The challenge that operators are faced with is meeting the ever increasing stringent legislative requirements while at the same time reducing operational costs. FLEXIM helps to meet these requirements by producing accurate and reliable measurements in demanding water and wastewater applications.

FLEXIM is the leader in ultrasonic flow measurement technology

The flexibility to clamp-on to the outside of the pipe and accurately measure what is going through them helps our business partners optimize their water and wastewater treatment plants.

FLEXIM meters help to optimize:

- your water usage by providing an easy and comprehensive method to discover water loss.
- your wastewater streams and sewage collection systems by equalizing pump and lift station performance.

FLEXIM meters are perfectly suited for maintenance applications. Our range of portable and permanent meters are easily installed under flowing conditions and easily identify leaky valves and underperforming pumps. They are also the systems of choice for the replacement of failed inline meters without having to cut them out of the pipe.

FLEXIM turns data into information you can use. Our FluxDiag software makes data retrieval a snap. View and export flow measurements into useful information quickly and easily. The 721 family even allows you to set up and re-configure your meter remotely.

FLEXIM has experience on applications where others cannot operate, by applying advanced technology that enables the meter to start-up and operate where other ultrasonic meters have not been successful.

FLEXIM is an experienced partner for the water and wastewater industry.

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