



APPLICATION NOTE Water & Wastewater

Verification of flow rates in a water supply line

- Fast and flexible flow monitoring in a main water distribution line
- Non-invasive flow measurement on a tar coated pipe with cement liner
- Use of a portable, battery-powered ultrasonic clamp-on flowmeter with Bluetooth® connectivity

1. Background

A water service provider in Malaysia operates various treatment water plants and a vast network of water supply lines. The drinking water pipes are usually laid underground and are difficult to access. Keeping track of the amount of water transported is critical for sustainable and efficient water distribution.

Water distribution is monitored by inline flowmeters of different measuring principles. These devices are used for various purposes, from fiscal metering and custody transfer to flow control and leak detection. However, implausible or missing readings from inline flowmeters can affect water management, as can "blind spots" in remote areas where inline flowmeters have not been installed.

2. Measurement requirements

To temporarily monitor flow rates in remote locations and to be able to respond quickly when existing inline flowmeters display incorrect or questionable readings, the company was looking for a portable flowmeter for a non-invasive check measurement in a main water supply line (DN750 / ~30"). The water supply pipe has a flow rate of approx. 1200 m³/h. The material composition of the water pipeline and the installation conditions presented a particular challenge. The pipeline is made of carbon steel with a cement liner and a tar coating on the outside. The control measurement required the uncovering of an underground section of pipeline located in a rather remote part of the country. Environmental conditions such as moisture and dirt from earth movements were also influencing factors in this application.

3. KROHNE solution

The water company decided on the OPTISONIC 6300 P ultrasonic clamp-on flowmeter. The device combines rugged, easy-to-mount clamp-on sensor rails with a portable, battery-powered signal converter.

KROHNE

The flowmeter's flexibility makes it ideal for check and comparative measurements on stationary measuring equipment such as pumps and inline flowmeters or as a short-term replacement for faulty devices. With its IP66/67 rating, the flowmeter can also be used in areas subject to heavy rainfall and temporary flooding. The signal converter can be connected to one or two rails for 1- or 2-path measurement. In this application, the 1-path measurement was used with two rails in a z-mode configuration. As the clamp-on flowmeter comes with a mobile tablet connected to the portable signal converter via Bluetooth®, the readings can always be conveniently monitored a few meters away from the installation.

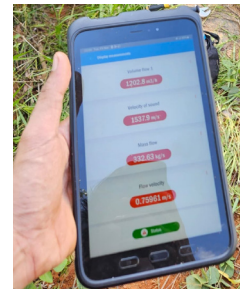


Commissioning of OPTISONIC 6300 P with two rails

The latest version of the meter has further improved measurement performance for applications with challenging liner materials such as cement. As a result, the OPTISONIC 6300 P can measure with long-term stability even under difficult conditions. A good signal strength and a corresponding signal-to-noise ratio was quickly achieved during commissioning. To optimise the operating conditions, the outside of the pipe was cleaned to a smooth surface prior to installation.

4. Customer benefits

The water purveyor benefits from a flexible and cost-effective solution to monitor drinking water flow rates temporarily. In this way, plausibility checks and control measurements can be carried out for a certain period of time and at any location. The clamp-on flowmeter can also check any inline flowmeter whenever needed, without cutting pipes, demounting or installing a new inline flowmeter.



Tablet for monitoring flow rates via Bluetooth®

For comparison reasons, the clamp-on flowmeter also has an integrated data logger. In this way, the customer can even collect readings from different measuring points. The stored data can be easily shared using the tablet's share function. This allows data transfer via email, cloud solutions or even popular chat apps such as "WhatsApp". The complete clamp-on flowmeter comes in a trunk on wheels or soft case, in which the portable flowmeter is safely supplied and can be easily transported.

Should the customer decide to install a stationary flowmeter in the future, a mains-powered ultrasonic clamp-on version designed for burial installation could also be provided by KROHNE as an alternative to installing a new inline flowmeter. KROHNE has one of the most comprehensive portfolios of clamp-on ultrasonic flowmeters and inline flowmeters of various measuring principles for the water market. These include compact mag meters, battery-powered water meters or large inline flowmeters for water pipelines and custody transfer measurement. The wide range of measurement instruments is backed up by a comprehensive portfolio of services, ranging from commissioning and troubleshooting to remote support, training, rental options and other customised premium services.

5. Product used

OPTISONIC 6300 P

- Ultrasonic clamp-on flowmeter for temporary flow measurement of liquids
- Portable, battery-powered meter used to collect additional flow data or for cost-effective on-site verification of inline flowmeters
- For pipes DN15...4000 / ½...160"; up to +120°C / +248°F
- Portable signal converter with integrated data logger
- Commissioning, monitoring and data analysis via a mobile smart device using the OPTISONIC 6300 P mobile app in combination with a USB cable or wireless Bluetooth connection®



Contact

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Do you require technical advice for your application?
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