

# XiLog<sup>+</sup> waste water applications

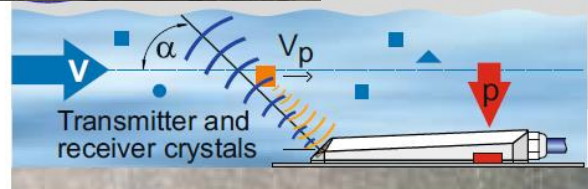
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The new *XiLog<sup>+</sup>2W* data logger extends the *XiLog<sup>+</sup>* range for use with more sensors on waste water networks. Applications include permanent monitoring of storm weirs, sewer overflows, network modelling and influence of rainfall and industrial discharges to networks.

## Open channel flow using Doppler sensor

The Doppler method uses a continuous, ultrasonic signal sent into the water at a known angle to measure the flow velocity. Moving particles generate a frequency shift proportional to the velocity of the particles

- One sensor for *Doppler* measurement + piezo-resistive pressure (depth) measurement + temperature compensation
- Wedge sensor for mounting on channel bottom
- For use in slightly to heavily polluted water
- Flow velocity range;  $\pm 600$  cm/sec
- Level range; 0 - 350 cm



## Level measurement using ultrasonic sensor

Ultrasonic pulses are reflected by the surface and received at the sensor. A common application is for depth v flow-rate determination on weirs and flumes.

- Typical application is for monitoring sewer overflows at times of excessive rainfall when sewerage may be discharged into the environment
- Range up to 3 metres
- Deviation;  $\pm 4$  mm or  $< 0.2\%$
- 4-20mA interface to logger

## Level measurement using radar sensor

Sensor uses pulsed microwaves enabling high accuracy over a wide range. Furthermore, it is not affected by humidity, surface foam, etc., creating false echoes.

- Accuracy;  $\pm 2$  mm (of reading)
- One device covers wide range (up to 15 metres)
- No dead-band under sensor (ultrasonic 250mm dead-band, 6m range)
- Not affected by temperature, humidity, surface foam, dust and air movements
- Low maintenance costs
- No drift and no recalibration



### Overflow sensor

The overflow sensor is self-powered and, when submerged, indicates presence of water. The system measures the time an overflow occurs, e.g. over a weir.

Installation of the sensor is made in the required position to detect an overflow. The sensor has a designed profile to avoid sediment build up.

Applications include;

- Storm weir overflow
- Detection of a tank overflowing
- Level detection in waste water chamber
- Alarm on threshold of water



### Raingauge

A raingauge can give first indication of increased surface water entering the sewer network. This provides information to treatment works upon predicted increased water volumes.

Features;

- Standard tipping-bucket rain gauge with 0.2 mm per tip
- All 'tip events' logged
- Report on start time, duration, total rainfall (mm) and rainfall intensity (mm/hour)

### Pump time functioning – current clamp

The current clamp detects when a pump is taking electric power; thus monitoring the functioning time of the pump. The volume of water pumped is calculated from the pump run-time. The accuracy can be limited but it is useful for modelling and understanding the network.

Features;

- Indicates if pump operation time increases - perhaps due to blockages
- No disruption to pump operation
- Can monitor two pumps
- Clamps installed on one phase of supply

