Sewer Level Monitoring

Introduction

Combined Sewer Overflows (CSOs) are responsive to rainfall. The heavier the rain, the greater the flow the sewer has to carry. It is inevitable during heavy rainfall or equivalent weather events some sewers will be overwhelmed. This overloading, if not relieved by CSOs, would lead to storm sewage flooding homes, gardens, streets, highways and open spaces.

CSOs are therefore essential structures in many combined sewer systems. When the system is full, they act as release valves designed to carry any excess flow by underground pipes to an outfall point, often a local watercourse. The discharge from the CSO is substantially diluted by rainwater and joins a watercourse swollen by rainfall.

Intense storms or wet weather persisting over a long period of time makes the system particularly vulnerable. CSOs are a design necessity in combined sewer systems to ensure that any excess flow takes place in a controlled way and at specified and managed locations.

Technolog products can be used to monitor when, and for how long, a CSO operates for during wet weather and can be used to detect blockages in dry weather.



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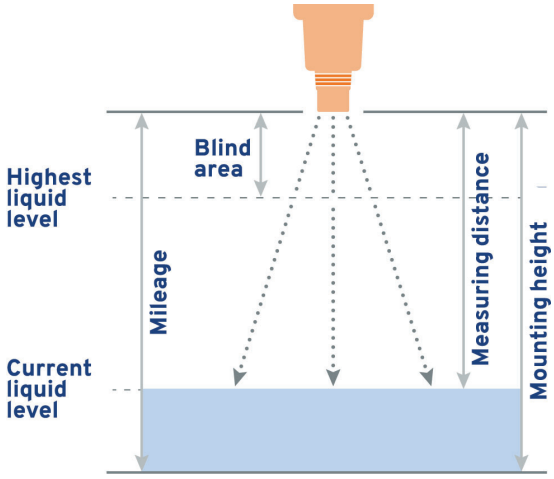
Sewer Level Monitoring

Technology

Non-Intrusive

Ultrasonic

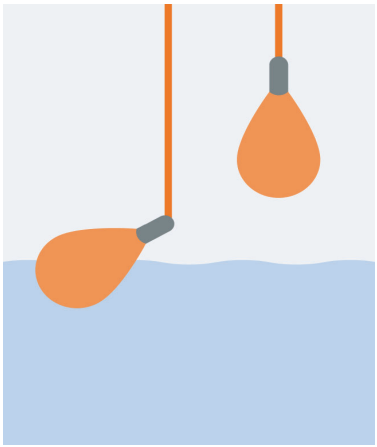
Ultrasonic pulses are fired at the surface of the water. Return time calculations are used to determine the depth of the water.



Intrusive

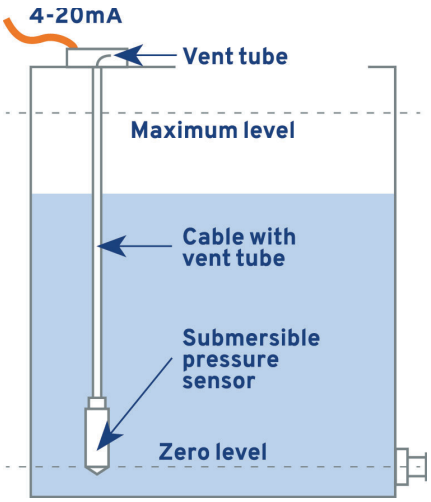
Float Switches

A float on a line contains an internal switch which is triggered when the float is tilted due to rising water level.



Submersible Level Transmitter

A level transmitter submersed within the body of water. The pressure from the surrounding water is measured using an internal strain gauge or similar and level calculated.



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Sewer Level Monitoring

Technology

Application	Ultrasonic	Float Switch	Level Transmitter
Fast moving water			✓
Slow moving water	✓		✓
Still water	✓	✓	✓
Debris on surface			✓
Risk of freezing	✓	✓	
Risk of ragging / sediment build up	✓		
Low maintenance	✓	✓	
Low budget	✓	✓	
Intrinsically Safe	✓	✓	

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Product Technical Matrix

	Cello IS Encoder	Newlog 4DR Mk2	Cello GS4
Service	Water, Waste Water	Gas	Gas
Available Communication Options	Local / 2G	Local / 2G	Local / 2G / 3G NB-IOT / Cat M1
User Accessible SIM	No	Yes	Yes
User Replaceable Battery	Yes	Yes	Yes
Available Channels	2	3	8
Optional Pressure Inputs	N/A	1	3
Supported Pressure Recording Strategies	I	I / A / S	I / A / S
Optional Temperature (PT-100) Inputs	0	0	1
Available Digital Inputs	0	2	5
Available Analogue Inputs	0	0	5
Internal / External Supply	Internal	Internal	Internal
Powering of Third Party Sensors	No	No	No
WITS Compliance	Yes	No	No
Intrinsically Safe	Yes	Yes	Yes
Protection Class	IP 68	IP 68	IP 67
Level Monitoring Capability	Ultrasonic Probe, PTI Transmitter	Float Switch	Ultrasonic Probe, Level Transmitter, Float Switch

Key : Pressure Recording Strategy (I - Instantaneous / A - Average / S - Statistical / T - Transient)

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