

Radio Data Networks



The Sewer Flow Regulator (SFR)

Tackling sewer flooding, pollution, plastics in the oceans, DG5 flooding & urban expansion.

Reducing Sewer Flooding, Pollution & Overloads

The Sewer Flow Regulator or as it is also known, the Wastewater Flow Regulator, is an awarding-winning, patented, British innovation that has the ability to make a sewer network smart. Combined with a smart sensor such as the Radio Data Networks BDT, a simple float switch, or microwave radar each SFR can operate autonomously throttling back the flow when downstream levels are too high to help reduce the occurrence of sewer flooding, sewer surcharges, and CSO spill events, the latter of which is known to be a cause of plastics entering our waterways and oceans.

Compared to traditional penstock-type methods of flow control, the SFR offers several advantages. Fabricated off-site, each SFR is designed to be installed into an existing chamber, sitting on top of the benching and without disrupting the invert. The SFR components are also sized to fit through existing access chambers. Collectively these attributes substantially reduce disruption, civil costs, time of installation, and the carbon footprint of the deployment, plus post installation, the likelihood of blockages is minimal as the invert is unaltered.

The SFR is safe too. Operating using air-driven actuators, no electricity is required in the chamber. The design also includes a patented overflow weir to prevent surcharges that can be adjusted to set the spill point. Furthermore, once the body of the SFR is installed, the regulator element can be retracted for service from the surface in most locations without the need for confined space entry, cutting service costs.

The SFR's lightweight construction makes it highly energy efficient too, enabling the SFR to be battery or solar-operated making its whole life carbon footprint as close to net zero as is practical. If mains power is available the SFR includes a battery backup that permits its operation in the event of power failure.



Product Overview

- Proven track record since 2018
- Smart network compatible
- low cost and low carbon compared to re-laying sewers
- Eliminates the need for new chambers - utilises existing chambers and benching
- Estimated to offer up to 80% cost savings over mains power operated penstock valve installations of equal size
- Utilising the existing invert means the SFR does not increase the risk of blockages
- Designed to be installed through existing access hatches (< 55cm)
- Automated autonomous local control with remote telemetry reporting
- Mains, battery, or solar operable enabling near net zero deployments
- Controllable using a wide range of smart network sensors
- Safe air-operated actuators - eliminates the need for an electrical supply in the chamber
- Controls housed in a small footprint roadside solar/mains control kiosk
- Includes a patented fully adjustable safety overflow weir
- The lightweight, removable regulator element enables servicing from the surface without the need for confined space entry

Enabling Social Housing

With the growing demand for new housing, the Wastewater Industry is constantly torn between the demands from planners, governments, and environmental enforcement bodies for new affordable housing.

Eliminating the need to re-lay sewers, or creating storm tanks or wet wells can free up land and resources for social housing, plus reduces the whole-of-life carbon.

Installing an SFR at the site's discharge point and installing oversized pipes during construction automatically creates controlled storage that is used to hold back flows during peak periods and storms, thus enabling the development to proceed.



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The Sewer Flow Regulator (SFR)

Deployed Examples



The Removable Regulator



Solar Controls



Plastic, clay or concrete invert compatible



Standard Sizes 10cm to 225cm larger to order

System Topology

Single Point Control

Dual Point Control

The Sewer Flow Regulator

The History of the SFR and its Role in Forging a Low-Carbon Sustainable Future

Awarded its Patent in 2022, patent number GB2574173, under the title Wastewater Flow Regulator, the SFR was designed to be sustainable from the onset. After decades of working in the water and wastewater industry, RDN's directors got the inspiration for creating the SFR from being a supplier of smart sensors and telemetry to enable the automation of motorised penstock valves and pump inhibit schemes. Both were observed to be expensive to create, disruptive, and highly carbon intensive, in particular when a new chamber was required, especially if under a roadway.

The design mission with the SFR was to create a low carbon whole-of-life alternative, that was affordable and non-disruptive, retrofittable into an existing network chamber. Additionally, it had to be easy to install, so any road closures would be hours rather than days or weeks. It also had to be installable in a live-flowing sewer without having to stop or bypass the flow and had to accommodate the differences between plastics, clay, and concrete inverts.

Crucially, the SFR was designed to be lightweight, hand carriable, and able to be installed without cranes. The consequence was it acquired a low inertial mass, slashing the energy required to operate to the point where today's SFR are operable from a small solar panel and battery.



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