

D22 Controller

Intelligent Reservoir Management

Firrhill SR - Edinburgh



Scottish Water have been using a Cla-Val 400mm Dual Solenoid Control Valve with stem position feedback transmission since 2001 at their Firrhill SR in Edinburgh. Until now the only method of controlling the inlet flows was via an onsite push button open/close system (nudge and wait) and using the stem % feedback to adjust the required flow rates. These flows had to be regularly adjusted to manage the levels inside the tank which meant an operator had to visit site each time an adjustment had to be made. Onsite telemetry was their only means of feedback transmitting flow and level data.

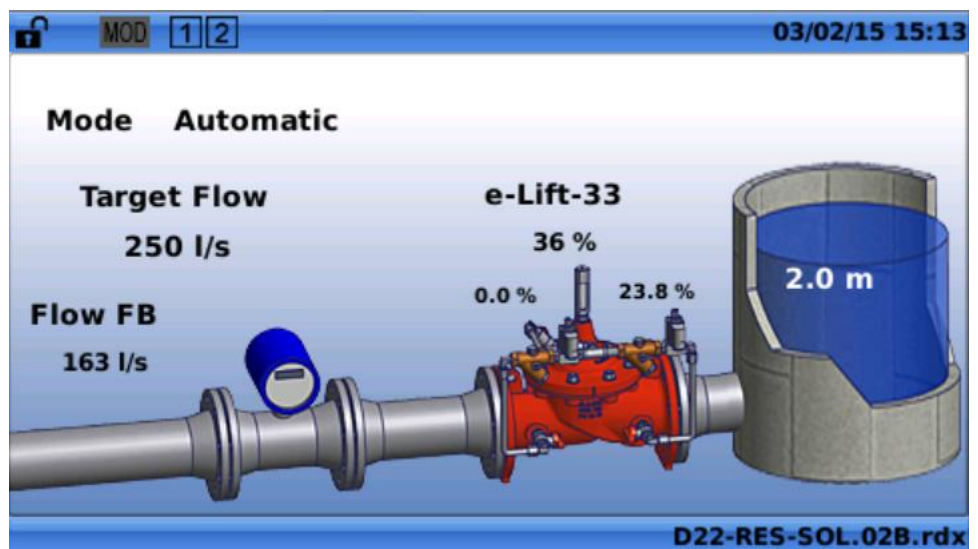
This method of control was both time consuming and impractical. It was decided that an automated device was needed which could self-adjust the inlet flows through changes in tank level and thus mitigate the need for constant manual intervention.

The Cla-Val D22 Controller is a sophisticated PID controller which uses site specific Cla-Val 'ValvApp' to interface with the valve application – in this case the dual solenoid control valve.

This ValvApp has 3 main modes of control:-

- Automated Control (using the programmable control curve FLOW v LEVEL).
- Local Control – Manually inputting either flow or position set points.
- Remote Control – Flow set points provided by SCADA

One of many features that the controller offers is a health status feedback via an internal 'watchdog' which outputs a timed on/off relay back to the telemetry system and is synchronized with their trip amp device so that both devices are in tune. This feature will alert Scottish Water immediately if there is something wrong, making this setup a more proactive approach to reservoir management. The controller also has the ability to reboot itself if it registers an error.



The screen shows all site parameters plus the 2 x alarm rules in the top bar

D22 Controller

Reservoir Level Control

Firrhill SR - Edinburgh

D22 Valve controller

- Automated Reservoir Flow Control - Profiling
- Watchdog Interface
- SCADA
- Unique Valvapps
- Local & Remote Control
- Loss of signal – Alarms
- Multiple PID
- Easy Programming

The D22 visual display shows a pictorial representation of the application including; the valve, flowmeter, reservoir level, position feedback, mode of control and target set point all neatly arranged around the screen.

Controlling variable inlet flows into the reservoir is the primary function of this valve, this is achieved by a PID loop inside the controller. This valve is installed with the Cla-Val E-Lift stem position feedback device. Therefore a 2nd PID loop is used so that Scottish Water can continue to set the position of the valve locally on the control panel if required.

The final feature of the D22 Controller at Firrhill SR is to provide 2 x output alarm relays to the onsite watchdog, this will alert Scottish Water immediately if there is a failure or loss of signal from their site flow meter or tank level sensor.

The D22 Controller has given Scottish Water a robust and accurate automated solution using our new technology in conjunction with an existing Cla-Val control valve to provide a proactive approach to reservoir management.

