

Prosonic Ultrasonic Transmitters maintain constant flow at weir penstock

In order to ensure the integrity of the UV Dosing performance at the Manukau Waste Water Treatment Plant it is necessary to continuously control each UV Channel level to a fixed value and measure the thickness of the water plume at the weir penstock.

The level of each channel is measured by a fixed Endress+Hauser Prosonic M FMU40 Ultrasonic Level Transmitter. The level in each channel is controlled by a weir penstock and the flow rate is derived from the thickness of the water plume over the penstock which is measured by another FMU40.

The FMU40s used to derive flow are installed on the moving penstock (right) which modulates to maintain a fixed water level at varying flows. This ensures the water level is maintained within the required design parameters and accurate measurement of channel flow occurs.



*Endress+Hauser Prosonic M FMU40 Ultrasonic Level Transmitters at Manukau WWTP
"Photos courtesy of Watercare Services Ltd"*



FMU40 mounted on the penstock weir

Positioning of the E+H Prosonics in this installation created some challenges that required the unique FMU40 software package to overcome.

The FMU's are mounted on the penstock with special brackets to ensure the target area was clear of the curve and turbulence of the weir.

However this resulted in the FMU being in close proximity to the maintenance walkway. At higher flows when the penstock was open to a lower position this was not an issue, however at lower flows, when the penstock was at a higher position, a high risk of false readings caused by the maintenance walkway falling into the sensor target area existed.

This issue was overcome by using the mapping feature of the Prosonic M software. Unwanted signals from specific objects in the target area are ignored resulting in total reliability.

This feature not only resolved this problem but is beneficial in any application where framework, or piping in vessels for example, give unwanted signals.

Wedeco UV Systems

EMC's involvement with this project has led to a close working association with Wedeco Water Technology Ltd - a wholly owned subsidiary of Wedeco Ag, operating as a unit of the Advanced Water Treatment division of the ITT Group.

Wedeco Ag is a world leader in ultraviolet and ozone disinfection equipment for the water and wastewater industry.

As well as supplying, installing and providing ongoing support for Wedeco ultraviolet and ozone disinfection systems Wedeco also represents some of the world's leading water and wastewater equipment suppliers.

Technical Advice and Service

Ian Hyland, Engineering Manager of Wedeco has responsibility for the UV installation at Manukau WWTP and comments as follows:

"Wedeco has been involved with EMC in recent years due to various project specifications requiring Endress+Hauser equipment.

In their role as equipment supplier EMC have been helpful with technical aspects, particularly in advising on applications and setting up of equipment.

Our experiences with EMC have only been good and we are more than happy with the service they provide".

More information?

Circle Enquiry No: 0504

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Prosonic M FMU40

- Continuous, non-contact level measurement in fluids, pastes, sullages and coarse bulk materials
- Flow measurement in open channels and measuring weirs
- System integration via: HART (standard), 4-20mA, PROFIBUS PA, Foundation Fieldbus
- Maximum measuring range: 5m fluids, 2m bulk materials
- Simple, menu-guided on-site operation with 4-line plain text display



- Envelope curves on the on-site display for simple diagnosis
- Easy operation, diagnosis & measuring point documentation with the supplied ToF Tool software
- Alignable IP68 housing
- Integrated temperature sensor for time-of-flight correction provides accurate measurement
- Linearisation function (up to 32 pts) for measured value output in any unit of length, volume or flow rate



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