

Irrigation Water Flow Measurement

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Fred Rice, Manager
United Irrigation District



Solar-Powered AVFM Area-Velocity Flow Meter Electronics Installed in Panel with Batteries



AVFM Ultrasonic Sensors Mounted at the Bottom of 36" Concrete Culverts

The United Irrigation District (UID) in Southern Alberta, Canada serves about 34,400 acres of rural land through a series of canals, channels and pipelines running 236 km throughout the region. Water is a valuable resource in the warm, arid regions of the province and agriculture uses 60-65% of the fresh water consumed. So water use is closely regulated and monitored.

Fred Rice, Manager of the United Irrigation District was looking for a flowmeter that did not obstruct flow in the irrigation canals. He used many meter types in the past but “other methods required a structure or weir in the channel that raised the water level and required a holding pond.” So the UID began installing AVFM Area-Velocity Flow Meters in 2008. The Greyline flowmeters work with a small, sealed ultrasonic sensor mounted at the bottom of a pipe or channel. The submerged sensor measures water level plus velocity and the flowmeter is calibrated according to the size of the pipe or channel.

The UID use the Area-Velocity meter’s flow rate display to regulate daily total flow delivered to their customers. Water users notify the UID prior to operation. The District knows the typical water consumption of each pivot so Ditch Riders adjust channel gates to regulate the flow rate and provide sufficient water for the number of pivots scheduled to be in operation. Unused water is returned to the river.

A program of Return Flow Credits is being considered in Alberta. If the province implements the program the UID plans to install additional AVFM Flow Meters to measure return flow of water to the river.

Links:
Greyline AVFM 5.0 Area-Velocity Flow Meter
Alberta Irrigation Information Booklet
Agriculture & Irrigation in Alberta