

FLOW RATE MONITORING TO MINIMIZE WATER POLLUTION

DATA TAKER DT82E PROVES TO BE A COST-EFFECTIVE SINGLE SOLUTION

A wastewater management district in Cleveland contacted CAS DataLoggers to supply an automated flow rate monitoring solution in a channel in their environmental project. In most cities, sanitary sewers and storm sewers were separate, so that storm water was diverted into a nearby lake. However, Cleveland had only one sewer available, so all of the flow went to the sewage treatment plant. In times of heavy rainfall, the plant was not equipped to handle the deluge, so the overflow sewage emptied directly into the lake. Therefore, to minimize this [water pollution](#), the district needed to measure the flow rate in a water channel prior to emptying into the tunnels. Workers needed an all-in-one system which could continually monitor the channel's water levels and flow and support data collection via USB. Ethernet communications could not be continuously maintained, and the device would be moved too often to make RS-232 communication feasible.



INSTALLATION

As a flow rate monitoring solution personnel installed a [dataTaker DT82E Intelligent Environmental Data Logger](#) down a manhole, mounted to a bracket on the sewer wall in a waterproof enclosure also provided by CAS DataLoggers. One of the dataTaker's analog inputs was connected to an ultrasonic height sensor with a 4-20mA output to measure the water height in the channel as the water flowed to a certain height.

A rain gauge was also part of a weather station which was then connected to the environmental data logger. The rain gauge provided a pulse output for every hundredth of an inch of precipitation. Along with the water level data gathered from the ultrasonic height sensor, the data from the rain gauge enabled users to get an indication of the channel's flow rate.

USAGE

Designed to handle environmental monitoring applications, the dataTaker had robust functionality and operated using low power consumption. The DT82E model featured 2 to 6 universal analog input channels supporting many analog sensor types. The logger also featured 4 bi-directional digital channels, 4 high-speed counter channels, and an SDI-12 channel. Data from the ultrasonic height sensor and the rain gauge were collected via USB retrieval.



User-friendly software was included with the dataTaker in the form of the built-in dEX graphical interface. The data logger's software also included a built-in Web Server and FTP. Data transmission was simple—users just grabbed a USB stick once a month. Once collected, the data was export to .CSV format for analysis.

BENEFITS

The wastewater management district benefited significantly following installation of the dataTaker DT82E data logger. The dataTaker's flexible measurement capability and high level math calculations proved cost-effective—using this single solution, operators were able to measure both the 4-20mA output from the ultrasonic height sensor and also connect to the automatic weather station reading the rain gauge. This enabled the district to determine the channel's flow rate at high accuracy, view the time between rainfall events, and document the extent of the subsequent changes in the channel's water level. This data gave users an idea of water distribution in the system which subsequently helped eliminate blockages and restrictions in the sewer pipes. The end result being optimized tunnel placement and elimination of sewage overflow and pollution in the lake.

For further information on the [dataTaker DT82E Intelligent Environmental Data Logger](#), flow rate monitoring, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.