

ModMAG® M2000 electromagnetic flow meter

Lake Hévíz in Hungary

INTRODUCTION

Lake Hévíz is the world's largest biologically active natural thermal lake, which is able to refresh body and soul alike.

The source of the 4.4 hectare water surface lake, which is rich in sulfur and minerals can be found 38 meters deep in a cave, which due to its high flow is completely replaced every 72 hours. The water of Lake Hévíz contains an equal proportion of dissolved and gaseous substances, therefore unifying the favorable characteristics of thermal waters rich in carbonic acid, sulfur, calcium, magnesium and hydrogen carbonate.



CHALLENGE

Every hour around two thousand cubic meters of mineral water flow from Hévíz lake to Lake Balaton through the Hévíz stream which flows through an electromagnetic flow meter that measures the flow rate and total flow.



SOLUTION

The stream is closed down by a sluice that is equipped with a large manhole and a DN800, 30m long pipeline that leads through under the water.

The flow meter is installed in the manhole at a section of the pipeline.

The Badger Meter ModMAG® M2000 electromagnetic flow meter transmits data to the Hévíz Spa and hospital maintenance department. This transmission is done via an RS-485 line. There is a 433MHz LoRa radio transmission between the meter and the maintenance office that serves as the wireless RS-485 line. The distance is about 400m. In the maintenance office, a Simex CMC-99 recorder works as the RS-485 master and gathers the instantaneous flow rate and the total flow. The recorder displays the very same values as the flow meter itself.



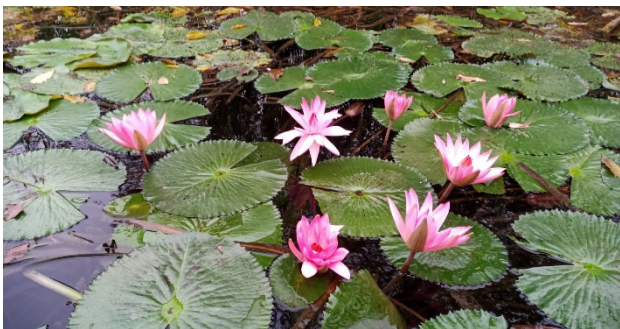


The flow meter transmits the instantaneous flow rate with the help of its 4...20mA analogue output to the local water utilities' station nearby.

A crane lifted up the cover of the manhole and put it aside and then lifted the flow meter into the manhole. During the installation works the sluice was opened and the pipeline was blocked so that the water could not flow in the manhole.



The interesting movements were watched by curious swimmers who enjoyed the free section of the stream. The flow meter measures the volume of the stream right where the canoe tours start even in winter time amongst the water lilies. This might be the only flow meter installed in a natural stream that is visited by tropical fish – set free by aquarists - in Europe at winter time.



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