

CASE STUDY

Going with the Flow in Brazil

As part of ongoing upgrades to Brazil's water sector, a full profile insertion flow meter (FPI) was installed near to the Castelo Branco Water Treatment Plant to provide detailed information on a flow variation. During testing, a voltage surge did not affect the functionality of the technology.

Increases in population coupled with industrial and agricultural demands have led to water shortages in many regions across Brazil. Add degrading infrastructure into the mix, leading to high water loss from leaking pipes, and the challenging situation means that the network flow needs to be monitored closely to ensure treated water reaches its destination.

COMPESA is the state water utility of Pernambuco and provides both water and wastewater services. In recent years the utility has awarded multiple pipeline contracts, as part of an ongoing infrastructure improvement programme.

One landmark project has been the multi-million dollar investment into the water supply system in the state's Agreste region. The aim is to provide water for approximately two million people and prevent water rationing over the next three decades.

A further challenge in Brazil has been coverage of the country's wastewater network: of the 27 Brazilian states, 22 have less than 40% sewage treatment. Addressing this enormous challenge, COMPESA took part in what is considered the largest public private participation (PPP) in Brazil's sanitation sector. A partnership together with Brazilian company Foz saw the start of a wastewater treatment operation in 14 municipalities of the Metropolitan Region of Recife and in the city of Goiana.

COMPESA has also been working to improve the accuracy of data collected within its water network.

Another project involved the installation of a Full Profile Insertion (FPI) flow meter in the main outlet of Castelo Branco Water Treatment Plant (Tapacurá), the second most important of the state. The hourly flow varied greatly at this point due to operations performed in the subsystems downstream – hence the need for improved measurement.

Previously, there was a single point electromagnetic insertion at this location. The FPI was placed in series, for analysis of the full profile repeatability. For a better comparison on the data, an intrusive ultrasonic flow meter was also installed at the same time as the FPI.



Preparation for FPI Mag meter installation

The supplied multi-electrode water flow sensor has no moving parts. As it contains nothing to wear or break, it's immune to clogging by sand, grit or other debris. The sensor body is made from heavy-duty 316 stainless steel for maximum structural integrity and is hermetically sealed by NSF certified 3M fusion-bonded epoxy coating.

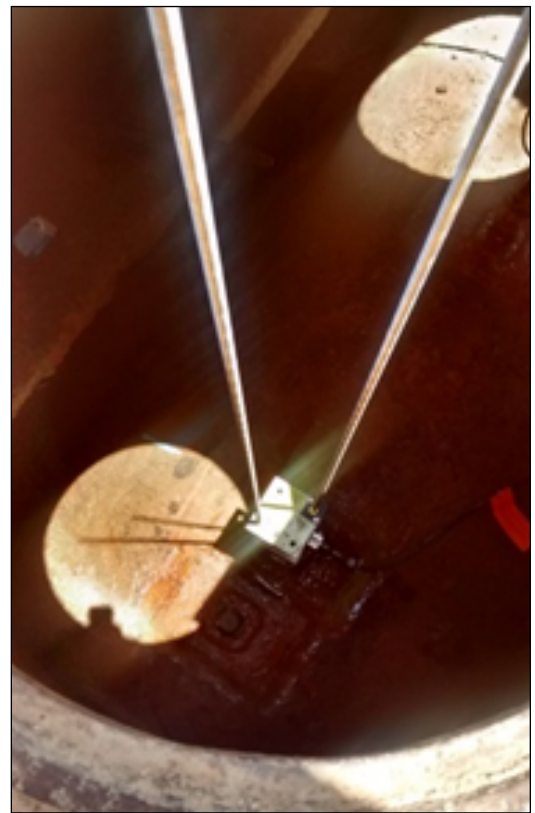
During testing, there was a voltage surge that reached the electrical network of both the intrusive ultrasonic and FPI meter. However, this did not present any impairment to the functionality of the FPI technology. One of the benefits of the FPI is a quick installation. As the COMPESA location had a 2" ball valve installed it allowed a short fitting time, despite the pressure of operation.

Alesson Thiago, operational technician from Hidrometry Management, who was involved in the installation, considers this a "positive". He said: "As for its performance, the equipment proved to be efficient and delivered the expected accuracy for the technology."

Thiago added that: "An additional upgrade condition would be the configuration increment that would allow the choice of the use of the specific electrode quantities, which would give greater versatility in the application in the flow measurement in different diameters."



Sensor insertion tool simplifies installation



Sensor installed