



OTT Hydromet Application Notes / Success Stories

Monitoring the vertical profile of water quality and weather in Pampulha Lake - Belo Horizonte - Brazil, with remote data transmission

Hydrolab DS5X multiparameter probe, WS301 integrated weather sensor, ADCON RG1 rain gauge, and OTT DuoSens datalogger

Background

Pampulha Lake is an artificial lake with an 18 km perimeter, located in the urban area of Belo Horizonte in Minas Gerais. This was a recreation area, frequented by swimmers, athletes, and families until the 1980s. It has suffered sewage problems and is in a serious state of eutrophication. The CETEC/SENAI along with the Mining Institute of Water, is responsible for the environmental monitoring of the lake. In 2010, Hexis began working with CETEC. This resulted in the installation of a buoy, equipped with an automatic profiling system, by early 2013. The project's objective is the continuous monitoring of the lake's water quality, with focus on improving this by the 2014 World Cup Games.



Aerial view of Pampulha Lake, Brazil-MG



OTT DuoSens



Lufft WS 301



ADCON RG1



Hydrolab DS5X

Monitoring Solution

The monitoring system is equipped with a DS5X multiparameter Sonde, fitted with a central cleaner, Luminescent Dissolved Oxygen, Temperature, Conductivity, Turbidity, Depth, and Chlorophyll a sensors. On top of the buoy, a SDI12, is combined with the WS301 sensor for atmospheric pressure, temperature, humidity, solar radiation, and an ADCON RG1 rain gauge for meteorological monitoring.

All sensors are connected to an OTT DuoSens datalogger with a GSM / GPRS modem, transmitting data hourly to the Mining Institute of Water - IGAN FTP server.



General detail of the buoy installation, with logistic with support from the Firefighting Corporation.

Summary

A Pioneer Project in Minas Gerais for Automatic Profiling of a lake using a Hydrolab DS5X multiparameter Sonde, with a central cleaning system mounted on a buoy. The data is transmitted to the IGAN FTP server. The system also monitors meteorological data, including atmospheric pressure, temperature, humidity, and global radiation, with a Lufft WS301 sensor and ADCON RG1 rain gauge.



Quality monitoring buoy with profiling

Benefits

The SDI-12 serial communication between sensors and datalogger allows the monitoring of 6 water quality parameters, and 5 meteorological parameters using only 2 physical ports of the datalogger.

The use of an integrated weather sensor facilitates the installation on top of the buoy.

The Sonde's central cleaner and the use of a Luminescence Dissolved Oxygen sensor provide ample time between maintenance (cleaning) of sensors, even in highly polluted waters.

Technology:

Hydrolab DS5X Sonde

- Central cleaner, reducing maintenance costs.
- Sensors do not require specific ports.
- Robustness and reliability proven by leading Brazilian and International bodies.

OTT DuoSens and SDI 12 WS301 Sensor

- Connection of SDI-12 sensors reduces the need for physical ports.
- User-friendly programming software.
- Integrated Lufft WS301 weather sensor, easy to install, with a single SDI 12 output