



OTT Hydromet Application Notes / Success Stories

Monitoring of level, temperature, pH and conductivity at two underground, Coca-Cola - mineral springs in Mogi das Cruzes -Brazil, with remote transmission of data

OTT PLS, HACH pH sensor, HACH conductivity sensor, HACH SC200 controller and OTT Duosens datalogger

Background

The Coca-Cola FENSA plant in Mogi das Cruzes is responsible for bottling mineral water supplied from two ground water sources. The plant is a benchmark for environmental sustainability projects. The Mogi das Cruzes plant was the first of the Coca-Cola FENSA Group to install an online Level, Temperature, pH, and Conductivity analysis monitoring system.



View of the Coca-Cola plant in Mogi das Cruzes, Brazil-SP

Monitoring Solution

The monitoring system consists of a level and temperature probe with a ceramic capacitive pressure sensor. It is fitted with a vented cable to compensate for barometric pressure, a digital conductivity sensor, a combined digital pH electrode, and Digital SC200 controller to connect the pH and conductivity sensors via a plug & play type digital interface with a bright LCD display, a OTT Duosens datalogger with SDI12 interface, and analog extension to interface with the SC200 controller, and GSM / GPRS modem. The level sensor was installed in a 1" tube at a depth of 150m, the pH and conductivity sensors were installed in a flow cell through 1/2" hole made in the main pipe. All sensors were connected to an OTT Duosens datalogger with a GSM / GPRS modem, transmitting data hourly to the Coca-Cola FENSA FTP server.







Summary

This is a Pioneer Project in a Coca-Cola mineral water plant for the online monitoring of Level, Temperature, pH, and Conductivity, in two ground-water sources. The system solution consists of an OTT PLS ceramic capacitive level sensor, HACH pH Sensor, HACH Conductivity Sensor (mounted in a customized flow cell), and data transmission to the FTP server at Coca-Cola FENSA. The system was designed to comply with ordinance 374 article 4.3.2 of the National Department of Mineral Production (DNPM).



Hexis Engineering Project - Complies with ordinance 374 DNPM



General detail of the installation of the flow cell, cabinet with Duosens datalogger, GPRS modern, FAD5 dehumidifier box, and SC200 control-ler



Benefits

The SDI-12 serial communication reduces power consumption and enables simultaneous monitoring of the water temperature.

The use of a ceramic capacitive level sensor with a ventilated cable, reduces the cost of maintenance since it is mechanically robust, has excellent long-term stability, and real compensation of the variation in water density of the water column, as a function of temperature.

The Kevlar coated cable does not loop and therefore does not generate the misleading impression that the water level is rising with time.

Technology:

OTT PLS Level and Temperature Sensor

- Ceramic capacitive sensor, much more resistant than piezo-resistive membranes.
- Changes (offset value with time) much smaller than conventional sensors.
- 904L Stainless Steel Body (DIN 1.4539), more corrosion resistant, and food grade.

OTT Duosens and HACH SC200 Controller

- Connection of sensors using SDI-12 protocol reduces the need for physical ports.
- User-friendly programming software.
- SC200 Controller has memory expandability with SD card and Plug & Play interface.

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