

## Case note

# ABB drives keep water jets dancing



Dancing fountains, lights and music form a unique show in the Expo Parque Bicentenario 2010 memorial park in Guanajuato Mexico.

The memorial park "Expo Parque Bicentenario 2010" in the state of Guanajuato in Mexico was built to celebrate the 200th anniversary of independence of Mexico as well as the 100th anniversary of the Mexican revolution. This approximately 6 hectares park is a place for various cultural events. It was built by the government of Guanajuato. A major feature of the celebrations in the memorial park is an array of fountains that are coordinated with music and lights to form a show.

In order to build the fountain the Guanajuato government contacted Ecofénix from the city of Puebla. The company specialises in building and servicing decorative fountains. Ecofénix was asked to build the application that would power the fountain cascades, as well as to coordinate their operation with lights and music.

A major part of the application was ensuring the fountain's water jets could reach varying heights on demand. Variable speed drives are ideal for this. Ecofénix had previously used a different drives supplier for similar applications but a demonstration at the company's workshop persuaded it to choose ABB general purpose drives.

"The support that ABB provides to our technical department was one of the main factors in our decision to change supplier," says Mr Xavier Páez Casanovas, executive director of Ecofénix.

A total of 188 ABB general purpose drives are used in the application, ranging from 1.1 to 15 kW.

### Changing water height over 50 times a second via submersible pumps

Each drive receives a speed reference signal via a RS485 Modbus. The speed reference is sent by a PLC. By changing the speed reference sent to the drive, which control submersible pumps, the height of the water jets can be varied up to 54 times every second. Submersible pumps are used to make water effects in dancing fountains.

### Easy programming

The ABB general purpose drives are equipped with a control panel, which has the ability to upload and download settings or parameters. This makes commissioning faster, which is an important aspect with the large number of drives involved.

"ABB drives have an easy to use control panel, which provides an easy way to test and deploy parameters to the drives," says Mr Páez.



A total of 188 ABB general purpose drives are mounted side by side to save space.

#### **Built-in chokes cut risk of audio distortion**

Another major reason for choosing the ABB drives are the built-in chokes for lowering the total harmonic distortion (THD). This allows the large number of drives to work simultaneously without interfering with the sound system. "The built-in swinging chokes reduce also significantly the time needed to install and wire up drives by requiring installation of only a single compact package," says Mr Páez.

A further advantage is the coated boards within the drives that prevent them from being affected by moisture from the fountains.

#### **Challenge**

- Ensure the water jets can reach varying heights on demand
- Provide sequenced timing for fountain application
- Minimize time to program and commission large number of drives
- Avoid harmonic interference with audio system

#### **Solution**

- 188 ABB general purpose drives, from 1.1 to 15 kW
- Drive changes pump speed to vary height of water jets

#### **Benefits**

- Quick commissioning of the large number of drives
- No electrical interference with audio system
- Improved reliability in harsh installation environments
- Space saving by side by side mounting
- Professional technical support from ABB

For more information please contact:

[www.abb.com/drives](http://www.abb.com/drives)

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