Waste Water Treatment

Applications
Factories
Office complexes
Chemical plants
Hotels
Airports
Sports complexes
Sewage treatment plants

Departments
Maintenance
Facilities

Overview
Nearly all commercial and industrial buildings have wastewater that must be preprocessed before it can be discharged into a municipal sewage system. Cleaning fluids, process chemicals, and excessive sewage require processing through a series of tanks where neutralizing chemicals are added, and waste materials are allowed to precipitate. The resulting sludge is removed to a dump site, and the “clean” wastewater is released into the municipal sewage system.

Problem
The preprocessing system must be carefully controlled at all times. Adding chemicals to the water, monitoring acidity, checking flow rates, monitoring tank levels, and verifying the purity of the discharged water must be monitored and controlled constantly to avoid potentially harmful and illegal wastewater discharge.

Solution
A VXIbus data acquisition and control system from VXI Technology not only measures the various parameters in the process, but also controls the process. Using the intelligence of the instrument and the computer, the correct amounts of chemicals are added to the “dirty” water to purify it. Because of the ease-of-use of this system, facility engineers can install this system in a short time. An accurate and reliable system will usually pay for itself in six months.

Implementation
Valve control
On/off valves are used to regulate the amount of water and chemicals in the tanks. Software in the instrument controls how long the valves are on or off based on factors such as flow rate and tank level. Control valves can
Acidity

Acidity is an important measure of water “cleanliness.” A pH meter measures acidity and outputs a voltage (0-1 Vdc) proportional to the acid content of the water. This data is used to control the addition of neutralizing chemicals in subsequent process stages.

Other transducers

Other transducers may be used to monitor parameters like temperature or radiation levels in the water. The type of transducer will depend on the application and the type of chemical in the “dirty” water.

Key System Features

- VXIbus open architecture
- Data Acquisition and Control on a single programmable VXIbus card (VT1419A)
- VTI DAC Express or Agilent VEE or NI Labview
- Flexibility with deterministic control
- Wide choice of inputs/outputs
- Built-in control algorithms
- Up to 32 user-written “C” code algorithms
- 65,000 reading FIFO buffer
- 500 reading Current Value Table (CVT)
- All algorithms can write to FIFO/CVT
- Data can be time-stamped

Typical Configuration

<table>
<thead>
<tr>
<th>Data Acquisition System</th>
<th>Qty</th>
</tr>
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<tbody>
<tr>
<td>C-100C VXI 6-Slot Card Cage</td>
<td>1</td>
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<tr>
<td>Firewire Command Module</td>
<td>1</td>
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<tr>
<td>VT1419A Multifunction Measurement &amp; Control Card</td>
<td>1-2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Channels Type</th>
<th>Qty</th>
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<tbody>
<tr>
<td>Analog input channels</td>
<td>20-60</td>
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<tr>
<td>Counters channels</td>
<td>1-3</td>
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<tr>
<td>Digital input channels</td>
<td>4-24</td>
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<tr>
<td>Voltage DAC channels</td>
<td>4-12</td>
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<tr>
<td>Digital output channels</td>
<td>8-32</td>
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