



Anaerobic Digestion

Background

Getting the most out of an anaerobic digestion plant can be challenging; effective use of intelligent but easy to use optimisation and process control tools can be the key to increasing profitability and productivity.

Spiro MPC

Spiro MPC is a multivariable model predictive control application. The application comes embedded on a small footprint edge device, designed to connect to any control system easily. When embedded with Spiro MPC, the edge device is able to automate control of connected assets and can maintain processes at their optimal operating point.

Using Spiro MPC, the efficiency of biogas production, in anaerobic digestion installations large or small, can be optimised. Maximising biogas yield requires constant monitoring and control due to the sensitivity of the process. Establishing and maintaining the optimum operating conditions requires understanding and visibility of any variation in key variables such as temperature, pH, loading rate, agitation, gas volume, methane and carbon dioxide. A significant variation in these variables affects biogas production, so constraints need to be maintained within a desirable range to operate the biogas plant efficiently.

In an application where biogas is either stored or consumed locally, for example as fuel for CHP gas engines, the biogas production rate can be adjusted in line with power demand or storage capacity.

Important for small-scale operations is that Spiro MPC can optimise reactor performance even when faced with limited real-time measurements of uncertain quality.

Given the estimate that methane content and organic loading rate can be increased by > 5% using Spiro MPC over normal operation performance, the return for even the smallest application is extremely attractive.

Spiro Analytics

Spiro Control offers a range of analytics applications that come ready installed on a small footprint edge device designed to connect to any control system easily and capture real-time plant data.

Our data analytics applications can be used to analyse process performance, diagnose faults and to infer hidden properties without the need for expensive on-line analysers.

Capturing and treating real-time process data facilitates early detection of abnormal operating conditions, when matched with clear reporting structures that set out optimal responses, the performance of the anaerobic digestion process can be greatly enhanced. This is possible even for a small scale operation with only limited sensors available.

For more information, contact info@spirocontrol.com