



DYCOR WHITEPAPERS
**BREWERY OPERATIONS
CONTROLS**



Dycor Technology Application Whitepaper

Brewery Controls and Reporting

Background

Dycor Technologies specializes in creating custom Data Acquisition and Industrial Control solutions using a combination of proprietary technology and off-the-shelf components. Applications for our products are deeply varied, and this whitepaper presents a functional example of a solution that can be developed and tailored for your specific needs.

Abstract

Small craft breweries typically rely on equipment control systems built by tank manufacturers which are installed by third party electrical contractors. The Dycor brewing solution operates in the space between simple temperature controls and high end control and display systems like Specbrew. Dycor panels generally provide both PID capable temperature control functionality with monitoring, logging, and reporting capabilities. Dycor offers a custom technology solution to provide reliability and improve efficiency saving small brewers from unexpected expenses.

Problem

Common systems for brewery control are built around a simple temperature controller. The controller is adjusted by brewers to maintain a specific temperature profile during fermentation, adjusted for post fermentation, and for storage or aging. In many small breweries these processes are completely manual, and equipment responsible for maintaining temperature (and managing tank pressures) are independent from control systems. Failures in heating, cooling, or pressure management are often found in the days following an event, when the ability to act on the failure is more limited.

Application Design

Implementation of the SmartVue as a 'Brewing Management' control provides additional security for brewers by:

- Actively monitoring and logging data
- Communicating over IP with monitoring and reporting systems to provide real time status outside the brewing environment
- Using multiple I/O channels to monitor, control, and process brewing data
- Provide ability to alter control parameters by loading 'programs' for different brewing processes or recipes.

Each brewing vessel is fitted with a pair of sensors monitoring temperature and pressure.

These sensors are connected through isolation circuitry and fed to a SmartVue Multi-channel PID controller in the brewers panel to actively cool the vessel contents based on received data. Concurrently – a DataTaker will capture both sensor, and SmartVue output, providing a monitoring and feedback process that will maintain brewing parameters. Data captured by DataTaker can be exported over an IP stack to software for Notifications and displayed to remote stations. (Internal monitors, office monitors, or web interfaces and remote notifications over mobile networks for example.)

The SmartVue controller is certified for harsh environments, and offers a touchscreen display which may be configured to display multiple data elements.

Dycor Custom Solution

SmartVue replaces simple temperature controls which can only trigger relays based on temperature. In operation, SmartVue monitors key process variables, and manages outputs to trigger relays on equipment to maintain the set points identified by its active profile. In addition to simple temperature control, data is logged for the 'real' state of sensors, the active state of controls, and historical trends assisting brewers in identifying equipment failures or inconsistencies.

Data from these processes is captured on a Data logging component, and exported in real time to a monitoring system with the ability to trigger local and mobile alerts to report status, or failures requiring human intervention in real time.

With active logging, brewers can be presented with much more specific data (which may be displayed visually) to encourage repeatability of brewing practices, and maintenance of equipment.

Unlike simple Temperature controllers with output to relays, the SmartVue / DataTaker solution provides control, logging, and reporting of current state to brewers, along with the ability to add, remove, and modify complete profiles using simple interface controls. Logging can provide brewers detailed data-driven knowledge about their product, which can positively impact repeatability and improvement. Errors and failures in equipment can be identified rapidly, so that intervention can prevent the loss of product.

Contacting Dycor

It doesn't matter if you're looking for help on a simple configuration issue with your data logger, or require custom developed, complex software programming for data acquisition systems to manage the data coming back from several hundred sensors – Dycor's technical team are here to get you up and running quickly and effectively.

Give us a call or [contact us on-line at www.dycor.com](http://www.dycor.com) requesting more information on how we can help you design and implement a data acquisition system that works for you.