

REAL-TIME PRODUCTION MONITORING TO SOLVE QUALITY CONTROL PROBLEM

ADWIN-LIGHT-16 RECORDS, CONTROLS AND ANALYZES CRITICAL DATA



CAS DataLoggers provided the data acquisition solution for a factory supervisory team who were looking to solve a serious quality control problem on their main manufacturing line. Their process was experiencing issues from a valve controlling an air jet used to blow faulty-looking components off the line after they failed an optical inspection. The latency of the valve's opening wasn't optimal, so these parts often kept moving down the line rather than being immediately rejected as intended. Therefore, the team needed a real-time data acquisition and control system to measure response times from the moment that air entered

the valve to the time when the valve opened. To record and view the exact latency to eventually get the timing right, they contacted CAS DataLoggers to suggest a real-time production monitoring solution.

INSTALLATION

CAS DataLoggers Applications Specialists recommended an [ADwin-Light-16 Real-Time Data Acquisition and Control System](#) to log and analyze data. Using this system, the line's engineer found an effective way to approach the problem: the ADwin's analog inputs were connected to high-speed measurements from 2 pressure transducers placed upstream and downstream at either end of the line. The continual data from the pressure sensors helped distinguish between 3 milliseconds and 6 milliseconds of valve openings and closures, which made a big difference in valve effectiveness, and the ADwin allowed users to view this latency and exact frequency of missed incidences to provide real-time process monitoring.



USAGE

The ADwin system's main benefit was its local 32-Bit [SHARC](#) DSP which used its own local memory to handle system management, data acquisition, on-line processing and control of outputs. This way, the connected PC's system resources were freed up for other tasks. Meanwhile, the DAQ system's digital line was used to trigger the manufacturing line. The 16-channel data acquisition system featured 8 16-Bit analog inputs, 2 16-Bit analog outputs, and 6 TTL/CMOS compatible digital inputs and outputs. The team made their choice from several system configurations including PCI, and EURO USB configurations, or external USB or Ethernet.

Real-time development was performed using the [ADbasic software](#). With ADbasic, users easily created and compiled the program code. ADbasic's functionality gave access to all inputs and outputs as well as functions for floating-point operations, process control and communication with a PC. A library complete with standard functions including filtering, various examples for counter use, closed-loop controllers, and function generators made for a quick implementation. CAS DataLoggers also helped the team by giving programming advice to get the project underway as quickly as possible.

BENEFITS

Using the ADwin-Light-16 DAQ system, the factory's supervisory team was able to correct their line's quality control problem by getting a highly accurate view of its air valve flow behavior. Using the ADwin system for real-time production monitoring allowed the valve's latency to be detected in as soon as it happened. The system's local DSP executed these real-time processes independently of a PC, and the included ADbasic software handled the programming for mathematical operations and functions which were executed immediately after each sampling step.

For more information on [ADwin Data Acquisition and Control Systems](#), real-time production monitoring or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.