

"Sampling System Data Acquisition"



The primary functions of a Data Acquisition System (DAS) installed in a Sampling System are:

1. Collect and store data from analyzers such as pH, Sodium, Conductivity, Silica & Phosphate
2. Display the collected data in various formats. Examples of formats are trends, tabulated data and bar graphs
3. Create useful reports indicating the condition of the steam generating cycle
4. Annunciate alarms to draw attention to parameters out of tolerance

In order to understand the DAS operation, we need to define its architecture. A basic system will consist of a hardware device to collect the data from the analyzers, and a personal computer used as an operator interface device.

The actual hardware required to collect data can be procured in several different configurations, such as Programmable Logic Controllers (PLC), Remote Terminal Units (RTU), Recorders, I/O Boards or other process controllers. The common thread between the various hardware devices is their ability to accept input signals from multiple analyzers, convert the data to a digital format, and transfer it digitally via a communication link to the personal computer (operator interface). For example, the input boards in a PLC will accept up to 16 analog (4-20 mA) signals from the analyzers. The PLC can be programmed to compare the input value to an alarm set point, and set alarm output contact if the value exceeds the alarm set point.

The personal computer (desktop or panel mount) will be equipped with a software package that is capable of requesting data and understanding the digital format sent to and from the PLC(s) on a single communication link. As a minimum, the software package must be able to create a database, generate trends and reports, and store and retrieve data. A variety of other functions including animated graphics, statistical process control (SPC), special alarming and event reporting, and main computer interfaces are also available.

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SENTRY EQUIPMENT CORP • PO Box 127 • Oconomowoc, WI 53066

Phone: 262.567.7256 • Fax: 262.567.4523 • **E-mail:** sales@sentry-equip.com

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The function of the DAS can be expanded to include the control of Chemical Feed Systems. To reach this level, the PLC hardware will include analog output (4-20 mA) and discrete input/output modules. The PLC is configured with the control strategy, and is capable of running the chemical feed system, even if the computer fails. This enhancement normally includes graphic generating capabilities which show chemical flow lines, tank levels, safety interlocks and other pertinent information.

Sentry has the capability to custom design hardware and software packages to meet the specific requirements of any data acquisition or control system relating to sampling or chemical feed control. Past experience includes distributed process controllers, remote terminal units, programmable logic controllers, and special software development.

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