

Continuous, Remote Monitoring Using Lookout and FieldPoint

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The Challenge: Creating a system, on a tight schedule and budget, to monitor, log, and remotely annunciate out-of-limit equipment temperatures in a biotechnology research facility.

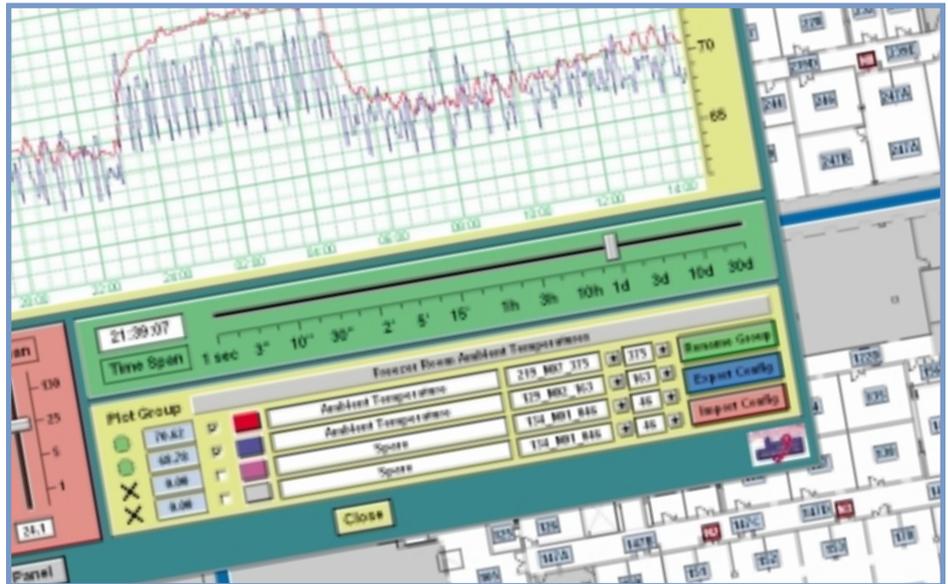
The Solution: Developing a distributed acquisition and conditioning system using NI FieldPoint nodes. Performing limit checking, logging, and trending of data with NI Lookout software.

Unattended Monitoring, Logging, and Alarming

Genetic Therapy, Inc. (GTI) needed a biotech research support facility, which included unattended, 24-hour a day monitoring and data logging of “microenvironments” used to culture and preserve experiments. Protecting this valuable research meant continuously evaluating alarm conditions and notifying on-call technicians of equipment failures.

FieldPoint for Remote Monitoring

Our requirements for facilities monitoring called for equipping 383 devices with 500 sensors for measuring temperatures, gas concentrations, and alarm relays. Monitored devices included liquid nitrogen (LN2) dewars, freezers, refrigerators, and cell culture incubators throughout the research



Using the Lookout facility monitoring system, you can easily select different views of the biotech storage facility.

of a network module and data acquisition modules, above the hallways’ drop ceilings for easy maintenance.

Lookout – Flexible and Object-Oriented

We chose Lookout to develop the facility monitoring system (FMS) software, in part because of its flexible, object-oriented nature. Lookout provided fast development, easy modification, built-in data logging, trending and alarming, transparent network connectivity, and a client-server architecture. Each of the 500 sensor channels defined in Lookout required a high and low alarm limit, both with associated delay periods to

The Lookout channel configuration panel also provides access to a real-time/historical trend plot and another panel with device ownership information. The FMS client process provides extensive operator interface to the system. Rooms in the facility containing any microenvironments in an alarm state flash their status on the main panel. Operators can view monitored devices, which are represented by an icon that shows the serial number and the device’s state.

Logging and alarm control was made easy by connecting the acquired channels to a single data table object. Custom alarm objects made possible the sophisticated alarming scheme that evaluates and pages only legitimate alarm states to on-call technicians, using a numeric code to specify the device type, current value, room number, and serial number. The features of Lookout and FieldPoint made the difference in creating a flexible system within a tight schedule and budget. ■

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facility. The physical distribution of equipment made it necessary to divide the collection of sensors into nine groups or “nodes,” each surrounding a remote data acquisition unit. We, at Data Science Automation, working with GTI, chose NI FieldPoint distributed I/O with external 24 VDC supplies. Nine FP-1001 RS-485 network modules communicated the acquired data to a central control PC. We mounted the nine battery-powered nodes, each consisting

accommodate hysteresis and prevent nuisance alarms. A single panel provided the interface to set these parameters, along with two forms of alarm suspending – temporary by timer and periodic by schedule. Temporary suspension, used while equipment is off-line for servicing, ensures that alarming is automatically re-enabled. Scheduled suspension prevents false alarms during scheduled events. Only sustained operation outside limits results in alarm events.

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