APPLICATION NOTE

CAS DATALOGGERS

Air Pressure Monitoring for a Chemical Fume Hood

Accsense A1-01a Pressure and Temperature Data Loggers

CAS DataLoggers recently provided the datalogging solution used to record pressure and temperature to monitor the operation of a laboratory fume hood. The manufacturer uses a chemical fume hood to protect workers by containing vapors, dusts, gases, and fumes, and then expelling them out via the ducted hood's exhaust system. OSHA laboratory safety requirements required the use of the hood to ensure operator safety and protection from exposure to the chemical vapors produced during production. Management began searching for an air pressure monitoring solution to monitor the lab room's pressure differential, which had to be negative to the space outside the room. This solution needed to feature 4-20mA inputs to connect with commercial pressure transducers and also include an ambient temperature sensor. Additionally, the manufacturer required an alarm to instantly contact staff whenever the differential pressure changed so that equipment could be serviced or replaced without delay.

Installation

Management installed 2 Accsense A1-01a Wireless Environmental Data Logger Pods, one in the chemical fume hood's control panel and another in the room immediately outside the lab door. An Accsense B1-06 Wireless Data Logger Gateway featuring built-in 10/100BaseT Ethernet collected the data from the wireless pods and pushed it to the Accsense Cloud Server. Both wireless pods were then connected to pressure transducers to efficiently record the differential pressure. The wireless system greatly simplified installation and reduced impact on the operators.

The Accsense environmental sensor pods began the air pressure monitoring of both rooms using their external 4-20mA inputs, and the lab room's pod recorded ambient temperature using its internal temperature sensor.

The Accsense installation was hassle-free and had virtually no impact on the manufacturer's existing network infrastructure since all the data was immediately sent out to the Cloud Server. The system's operation was both simple and intuitive, so there was no need for time-intensive training sessions. The data loggers could operate on either battery or AC power and also featured 2 digital inputs as well as a +5Vdc output to power external sensors. The Accsense wireless gateway could support as many as 16 sensor pods as well as DHCP and static IP addressing. The pods and gateway radio transmission range is up to 250 ft., and due to the mesh radio network, the pods act as repeaters to extend their signals. A built-in 250-point data buffer allowed the pods to continue to collect data in the event of a power or internet outage.

Usage

The Accsense wireless system also provided the lab with cloud-based data storage and reporting for effortless alarming and data archiving. Together with the wireless gateway, the pods continually monitored the fume cupboard's pressure and temperature data, giving management remote access to data in real-time. Once online, data could be downloaded as a manageable CSV file and loaded into most database applications. Advanced alarms monitored the incoming data and sent email, test message or phone warnings to multiple addressees whenever an alarm was triggered.

The company's Accsense online account gave instant access to graphs showing all measurement history with ranges as narrow as 5 minutes or as wide as 90 days, and also offered a customizable interface with a dashboard showing the most recent measurements from all sensor pods.

Benefits

The manufacturer successfully implemented effective air pressure monitoring in its lab area following installation of the Accsense A1-01a Wireless Environmental Data Logger Pods. Continually monitoring the pressure ensured safer operation inside and outside the lab. Working conditions were further improved and OSHA monitoring requirements were satisfied with the Accsense system's powerful alarm capabilities which immediately notified all parties when the differential pressure or temperature went out of specification. Implementation of this system was simplified with no need for IT department involvement or training sessions.

For further information on the Accsense A1-01a Wireless Environmetal Data Loggers, other Accsense wireless and wired monitoring solutions, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.