APPLICATION NOTE

CAS DATALOGGERS

Food Storage Monitoring Protects Perishables For Small Business

T&D Temp & Humidity System Safeguards Specialty Cheese

CAS Data Loggers provided the food storage monitoring solution for Tulip Tree Creamery, a small business located on the northwest side of Indianapolis. After 20 years of international consulting for other creameries, owner, Fons Smits decided it was time to produce hand crafted specialty cheeses himself. Originally hailing from the Netherlands, Mr. Smits started Tulip Tree Creamery in 2014 and started making cheeses using traditional recipes from Europe while adding his own experience and innovations. He explains: “I wanted to create something really special to offer customers in this region, including triple-cream, natural rind, wash rind, and more varieties of cheese.

Tulip Tree stores its product in a warehouse shared with other local businesses to keep his product fresh, Smits needed an online wireless temperature and relative humidity monitoring system that could log temperature and humidity in his cheese aging rooms 24/7. This system would also need to send warning notifications preferably through emails whenever conditions were unfavorable for cheese storage which could result in compromised product that would need to be disposed of rather than sold.

Installation

Mr. Smits decided that the T&D RTR-500 Wireless Data Logging System was the right solution. The system is comprised of the RTR-500AW Wi-Fi connected data collector, four RTR-502 External Temperature Sensor data loggers, and two RTR-507 Wide Range Temperature and Humidity Data Loggers. Placement of the data loggers was easy due to their small size and external temperature sensors while the RTR-500AW data collector was placed in a central location to maximize wireless communications with all the data loggers.

The T&D RTR-500AW Wi-Fi Data collector automates the retrieval of all data points from the entire group of data loggers, aggregates and sends the data to the FREE T&D Cloud Service. Wireless communication between these units and the base unit has a range of 500 ft. unobstructed while current readings are visible locally on their LCD displays.

Smits explains, “I wanted to see detailed data from my aging rooms because if conditions are out of range like low humidity, the mold-ripened cheeses will dry out and have to be disposed of. We store our cheese product in a 3500 sq ft. area in a larger warehouse so I have the data loggers on the outside of each aging room with the probe wired inside the room through a hole I drilled. The base station is in the corridor between the rooms mounted on a wall, this wireless setup works really well in our warehouse.”

"Each room has its own air compressor system but we always want the best product quality, and we need more control of the air systems. I can only do that after I measure the temperature and humidity in the rooms directly." This setup makes the most recent data easily accessible from the corridor. Through their configurable sampling rates, the loggers are set to take a reading every 10 minutes and have a 16,000 point storage capacity.

Each of the four aging rooms stores its own style of cheese which requires different conditions to mature post-production. The more aromatic cheeses need to stay moist on the outside to grow, so they require a high humidity. In contrast, natural rind cheeses need a lower humidity, but if it goes too low the cheese will dry out impacting its quality.

Wireless food storage monitoring has vastly improved Tulip Tree Creamery's product quality. Smits explains, "The better I can control the temperature and humidity in my aging rooms, the more positively I can impact the quality and consistency of my cheese product. This in turn has an immediate effect on my business's profitability. After installing the loggers, I immediately decreased the humidity in the natural rind cheese aging room and have seen an immediate positive impact on the product."

Regulatory Needs

The collected environmental data is also useful. Smits continues, "There are new HACCP quality control rules coming next year, so with T&D we can show inspectors that we're monitoring the temperature and that we have conditions under control. We're currently planning our critical control points, and we plan to be fully HACCP compliant by spring of 2016."

"We also have regular state board of health dairy inspections every three months since we are a Grade B facility. The board requires that our facility has a temperature monitoring method in place in each room where we store product. Our T&D system will give them more trust in what we're doing…I can show them the environmental data of any given period of time so they can see that the readings are within safe levels and that we've made an investment for quality and safety."

Alarm Capability Protects Products 24/7

In case of an out of tolerance condition, the T&D base station automatically sends alarms directly to designated email addresses or can activate a local alarm using the built-in relay. No local computer is required because the RTR-500AW determines whether a temperature or humidity excursion has occurred and then generates the alarm notification.

Owner Fons Smits describes his response to an alarm situation, "In the dairy industry you have to act on alarms ASAP because if temperatures get too high bacteria can quickly develop. If I receive a notification I drive out here and immediately adjust the thermostat or humistat as needed. If the HVAC system fails the T&D base station immediately sends me an email so I have time to move our cheese out of the affected aging room and into an unaffected one."

Software

The T&D software interface allows Smits to check each logger's readings individually or as a group, and to check each logger's current status. "The software's easy to use, I like it a lot. A few years ago I looked at other data logger systems, but their software looked difficult to learn. With T&D our data shows us how consistently our HVAC systems are performing. I also use the software to illustrate to my staff how opening the door for just a few seconds can quickly affect the temperature causing it to rise rapidly."

Benefits

Since installation, Tulip Tree Creamery's new T&D system automates environmental monitoring and alarming in every cheese aging room giving them a low-cost wireless solution. However, Smits already sees the potential in the future to monitor the cooling tank containing his milk supply, and also to monitor his pasteurization process which will make his daily routine even more convenient.

Smits comments, "The biggest benefit of the system is peace of mind. T&D's automated alarm feature makes my product better by helping me improve the storage conditions. For instance, yesterday I looked at the data and saw that some of my cheese was losing a little moisture. Now that I've spotted that, I'm able to level it off with my humistat which means that I have more cheese to sell.

"I can definitely recommend this for small businesses, it's been ideal for us. It's a system that can be installed by anyone, without needing help from IT. I'll soon be adding two more temperature and humidity wireless data loggers."

Bill Hoon, Application Specialist with CAS Data Loggers, comments, "Many of our Food & Beverage callers have this same priority—protecting their products. T&D is often the ideal solution for them whether their product is in a warehouse, reefer truck or what have you. T&D solutions are ideal for recording perishable food storage temperature environments."

For further information on T&D RTR Wireless Data Logging Systems, food storage monitoring 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.