

## Mapping a Greenhouse Micro-Climate Using Wireless Data Loggers

### *T&D Automates Data Collection to Improve Product Quality*



CAS Data Loggers has just provided the wireless temperature monitoring solution for a Northeast Ohio greenhouse growing lettuce and other high-demand produce. To ensure the highest quality product the greenhouse 'micro-climate' has to be evenly maintained at an ideal temperature. The greenhouse climate control system is slow to respond leaving several cool zones outside the immediate heater coverage area. Staff members were manually checking glass thermometers, but these were impossible to read at a distance and rarely reflected the actual temperature. Wanting to automate his setup, the owner called CAS Data

Loggers looking for a wireless temperature monitoring system that could identify these cool zones and automatically download their data to an email account.

The owner placed 3 wireless T&D data loggers at various points in the greenhouse and one T&D USB connected data collector to automatically gather and aggregate the temperature data. Placement in the greenhouse was easy and discreet due to the small size of the data loggers. The data loggers use an external temperature sensor to take readings in real time from -60°C to 155°C (-76°F to 311°F) and can record in either Celsius or Fahrenheit. Current readings are visible from a distance on its LCD display. T&D data loggers are constructed with a compact water-resistant casing, have a battery life of about 10 months, and record on a large 16,000 point memory.

Wireless communication between the data logger units and the data collector is a maximum of 500 ft. unobstructed. There are data collectors designed to communicate the data via USB, GSM cellular technology, Ethernet or Wi-Fi. To increase the transmission distance the USB data collector can be added to the system as a repeater. The data collectors are capable of downloading one data logger with a full memory in about 2 minutes. Equally importantly, it's easy for the owner to make settings and changes remotely over the network without the need to drive back out to the greenhouse.

After setting the loggers' sample rates to automatically take a reading every 15 minutes, the owner is looking at the temperature data with an aim to pinpoint where the greenhouse temperature is off the mark. If the temperature reading is outside of the upper or lower alarm

threshold the data collector will generate an email alert notifying the desired team members so they can adjust the climate control system or even add additional heaters where needed.

The T&D wireless data logging system can be directed to save the data locally or have it sent to the FREE T&D Web Storage Service. After analyzing the data the proprietor can find the optimal settings for the climate system and the best areas to place heaters.

T&D automates all monitoring and alarming so the proprietor is free to spend time identifying how to respond to temperature variations leading to lower amounts of produce being rejected and increased profits.