

CHOCOLATE STORAGE TEMPERATURE MONITORING DURING SHIPMENTS

DATA TAKER PROTECTS TRANSPORTATION OF CHOCOLATE



CAS DataLoggers supplied the [chocolate storage](#) temperature monitoring solution for a chocolate manufacturer experiencing problems when complaints came in from customers occasionally receiving spoiled chocolate products. There were three possible phases where this risk could occur-- during manufacturing, transportation, or after the retailer received the chocolate. Since both temperature and humidity were critical to chocolate quality, it was necessary to closely monitor both parameters during the entire process.

Using their own equipment, the company found that their manufacturing process wasn't the cause, so their next step was to monitor the product during transportation. Management began searching for an intelligent data logging system that could measure both temperature and humidity and connect to RTDs and thermocouples for high accuracy recordings. This device would also need to include user-friendly software for quick configuration and analysis.

INSTALLATION

The manufacturer installed a [dataTaker DT80](#) Intelligent Data Logger in the back of one of their contractor's trucks. A comprehensive temperature and humidity profile was then put into place: the DT80 datalogger was connected to several sensors in-

-cluding RTDs, thermocouples, and humidity sensors. 3 RTDs and 3 thermocouples were used to monitor the temperature within several cardboard boxes of chocolates, with 3 more recording humidity. All were connected to the battery-powered data logger, which was then configured to take a continuous series of readings at a set hourly interval.

The cost-effective DT80 was expandable to 100 channels, 200 isolated or 300 single-ended analog inputs, and provided extended operation; sampling every hour, the logger could keep recording unattended for nearly 4 months. Featuring a built-in display and removable screw terminals for secure connections, the stand-alone data logger recorded all measurements at a precise 18-bit resolution across a ± 30 V input

measurement range. The logger's high-speed counter inputs, phase encoder inputs and programmable serial sensor channel allowed it to easily connect to a wide variety of sensors and data measurement sources. Temperature, humidity, voltage, current, 4-20mA loops, resistance, bridges, strain gauges, frequency, digital, serial and calculated measurements could all be scaled, logged and returned in engineering units or within statistical reporting. Additionally, the dataTaker's ease of use enabled operators to group sampling, logging, alarm and control tasks within fit their needs.



schedules to

USAGE

Managing all the data was just as easy: the datalogger stored up to 10 million data points in user-defined memory so that the system could make as many shipment runs as needed to identify the problem. The DT80 also offered users the choice to overwrite or stop logging once the allocated memory was full. Data transfer options included Ethernet, optional WiFi or built-in cellular modem and front panel USB stick.

Smart serial sensor channels capable of interfacing to RS232, RS485, RS422 and SDI-12 sensors, and Modbus slave and master functionality allow connection to Modbus sensors and devices and to SCADA systems. The data logger's built-in web and FTP server allowed for remote access to logged data, configuration and diagnostics, and USB memory stick support offered users a quick method for easy data and program transfer. The USB data was easily retrieved from the delivery drivers and then downloaded to an office PC where the temperature and humidity information was displayed in a convenient spreadsheet format and analyzed using Excel software.

Additionally, dataTaker's user-friendly dEX graphical interface was included free with the datalogger using a preinstalled Windows Explorer-style interface enabling quick setup and configuration. The dEX software was configured and ran directly from a web browser, accessible either locally or remotely over the Internet.

BENEFITS

Following installation of the dataTaker DT80 intelligent datalogger, the chocolate manufacturer successfully identified the cause of their product spoilage--it was clear from the gathered data that their main contractor's drivers were conserving fuel by turning off their trucks' fuel-driven refrigeration units for hours at a time. Once detected, this practice was quickly stopped, decreasing the incidence of ruined shipments. The problem had been identified using the data logger's ability to connect to both humidity and temperature sensors, log for extended periods, and to analyze data with the included dEX software.

For more information on [dataTaker Data Loggers](#), or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.