

WEATHER STATION DATA LOGGER COLLECTS METEOROLOGICAL DATA

COMPLETE WEATHER MONITORING USING AN INTELLIGENT UNIVERSAL DATA LOGGER

A manufacturing company needed to collect [meteorological data](#) to study the effects of weather on building materials such as roofing shingles. CAS DataLoggers provided the [dataTaker DT85](#) data logger for monitoring the environment and test samples in small test sheds located in a field near their development facility. Long-term collection of a variety of weather data is required to determine how the products perform under harsh conditions year-round. The field engineer wanted a single recording device to capture data from various types of weather sensors that would be reliable enough to log unattended in both fierce winter storms and blazing hot summers.



INSTALLATION

The engineer assembled a fully-functioning weather station using a dataTaker DT85 Intelligent Universal Data Logger as the brain of the system. The data logger's 16 analog inputs allow for connection of up to 32 differential inputs for voltage, 4-20 mA current, resistance, or strain gauges to accommodate virtually any type of sensor. Separate digital and counter channels can be used for sensors that provide a pulse output such as an anemometer or tipping bucket rain gauges. The DT85 also has serial (RS-232/422/485), Modbus, and SDI-12 support for smart sensors allowing it to collect data from integrated weather stations like the [Vaisala WXT-530](#) or Met One AIO 2 Sonic. The DT-85 data logger captures the data from all these types of sensors, scales the data into engineering units, and securely logs the data to non-volatile memory.

The rugged DT-85 data logger boasts a high-quality design that can stand up to extreme temperatures found in the test sheds. For additional protection, the dataTaker is housed in a waterproof Pelican® enclosure secured to the wall of the shed. External cable glands on the enclosure provide a liquid tight connection for the cables between the dataTaker and the sensors. Since there was no AC power at the location, the ability of the data logger to enter a very low power “sleep” mode allowed it to be powered by a small solar panel and battery allowing year-round operation.

USAGE

The dataTaker DT85 data logger now collects data on solar radiation, ultraviolet radiation, surface temperatures, humidity, wind speed, wind direction, precipitation, and the temperature at multiple points under the roof. The dataTaker records and stores a reading from each of these sensors at any interval chosen during configuration, for this application the engineer chose once every 15 minutes.



The dataTaker data loggers have internal non-volatile storage for up to 10 million data points allowing extended logging where a direct connection to the logger such as Ethernet or USB for data retrieval is inconvenient or not possible. For this application, the engineer chose to unload the data from the data logger using the built-in USB thumb drive port. Once a month the user would plug a USB stick into the logger and push a button on the front panel of the logger to dump any new data to the stick in a .CSV file. From that point, the data can easily be transferred to a PC for

analysis using standard tools like Microsoft Excel. Using the saved data files, the engineer can create tables, charts, and graphs illustrating the historical conditions to which the materials were exposed.

The dataTaker DT85 is supplied with [dEX® 2.0 software](#) which provides a user-friendly graphical interface for quick setup and configuration. dEX is a free Windows-based package that allows users to connect to the logger via USB or Ethernet connection. It allows point and clicks configuration for all of the measurement channels, scaling of measured data, calculated channels, and easy real-time monitoring for testing during the commissioning of the data logger.

BENEFITS

The Intelligent Universal dataTaker DT85 is a flexible and reliable solution for recording and storing the necessary meteorological data at a cost-effective price. Its complement of flexible inputs, analog, digital and serial, allowed the connection of all of the different sensors required for the application. The engineer was able to quickly configure the logger thanks to the included dEX software. And the easy-to-use system is rugged enough to keep logging within its enclosure no matter the weather. The capability to unload data to a USB stick with the push of a button and in a format that allowed it to be easily read by common tools greatly simplified analysis.

For further information on the [dataTaker DT85 Intelligent Universal Input Data Logger](#), weather station data loggers, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or visit our website at www.DataLoggerInc.com.