

## SHIPPING CONTAINER MONITORING TO GUARANTEE QUALITY OF PERISHABLES

DATA TAKER RECORDS OXYGEN, CO<sub>2</sub>, ETHYLENE, AND TEMPERATURE LEVELS



For quality purposes, CAS DataLoggers was presented the challenge of environmental monitoring in a shipping container during the exportation of paprika peppers and various fruits. The critical elements to be maintained included the oxygen levels, CO<sub>2</sub>, [Ethylene](#) and temperature. If any of these factors exceeded acceptable limits during transport, the product quality would be jeopardized. Therefore, a durable logging solution with a large memory capacity was required, one that could survive possible damage in the shipping container.

Key requirements for this shipping container monitoring system included portability, large memory capacity, battery operation, and easy sensor connection.

## INSTALLATION

Installation included a [dataTaker Intelligent DT80 data logger](#), housed within a custom dataTaker Portable Enclosure. The shipping container monitoring system was then connected to several sensors, including an oxygen sensor, CO2 sensor, an ethylene sensor, and temperature sensors. Encosys, the dataTaker Korean distributor, modified a standard dataTaker Portable Enclosure to ensure that the gas and temperature sensors would be easily connected through the



enclosure while the data logger was safely sealed inside. A connector for an external DC power source was added to the enclosure so the internal battery could be charged when necessary without opening the enclosure. Custom temperature sensors were also made for the client so the fruit's internal temperature would stay closely monitored during transit.

## USAGE

A cost-effective data logger for many general applications, the DT80 featured 5 to 15 universal analog sensor inputs, expandable to 100 channels, 200 isolated or 300 single-ended analog inputs. Information gathered during transit was easily accessible to personnel via the built-in display. Additionally, the logger's rugged design and construction provided reliable operation under the container's extreme conditions. The stand-alone, low power DT80 was easily able to connect to the client's sensors with its analog and digital channels, high-speed counter inputs, phase encoder inputs and programmable serial sensor channels.

## BENEFITS

The customer immediately benefitted from the installation of the DT80 data logger, which proved to be an effective solution for this application given its portability, the internal battery convenience and its generous memory capacity for up to 10 million recording points. Extensive communication capabilities came standard, such as its built-in web and FTP server allowing for remote access to logged data, configuration and diagnostics. Modbus slave and master functionality enabled connection to Modbus sensors and devices and also to SCADA systems. Smart serial sensor channels allowed interface to RS232, RS485, RS422 and SDI-12 sensors. USB memory stick support was also built-in for easy data and program transfer. With all these features, the client found it convenient to connect with the DT80 locally, remotely, or over the Internet.

Past concerns about the logger's survivability became a non-issue—the weather-proofed portable enclosure protected it from accident as well as external conditions such as water and dust. The case could withstand a full 800kg of stacking loads and even survive being submersed for short periods if necessary. Furthermore, if the customer wanted to create a complete turn-key package, connectors for thermocouples or other transducers could be mounted, as well as other equipment such as cell modems, batteries, or custom transducers.

Upon the shipping container's arrival, data was quickly downloaded via USB cable and analyzed to ensure that the product remained within acceptable environmental limits during transportation. This guaranteed the quality of the importer's goods during transport and helped them to continue supplying a premium product.

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For more information on [dataTaker Universal Data Loggers](#), shipping container monitoring 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](http://www.DataLoggerInc.com).