

## STEAM HEAT STERILIZATION MONITORING IN A RICE MILL

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### ADVANCED DATA LOGGER PERFORMS CALCULATIONS IN REAL-TIME



CAS DataLoggers introduced a flexible data monitoring system to a rice miller and food processing company that had recently installed a new production line. This line produced various cooked rice products in reheatable and microwaveable polymer sachets. Consequently, the data logging system was utilized to monitor the retort cooking and steam heat [sterilization temperatures](#) as well as the accumulated F0 value (expressing the heating time required for disinfection) during production of its various pouched rice products. The added capability to download the results was also necessary both for analysis and quality purposes. Internal

calculations and real-time data collection were crucial customer needs.

### INSTALLATION

A [dataTaker DT80 Intelligent Data Logger](#) was configured for 12 thermocouple probes to monitor the progress of the cooking temperatures inside the sachets and also to monitor the development of steam sterilization as measured by F0 value. The probes were centrally placed inside the pouches, which in turn were placed at appropriate locations throughout the load in a retort.

## USAGE

During the cooking process, the temperature of each probe was recorded every 30 seconds and closely charted in real-time on a computer screen. The partial F0 for each probe was calculated in half-minute intervals and a progressive F0 value for each probe was accumulated and displayed onscreen. This real-time data was then returned to a computer running [dEX software](#) which displayed a trend graph of the temperatures as well as a numeric display of the progressive F0 accumulations. The DT80 also logged the temperature and progressive F0 data into memory. By the cooking time's finish all information was downloaded as a CSV file and retained for analysis and quality purposes to ensure a proper production requirements.

## BENEFITS

The customer realized several benefits from installing the DT80 data logger. Primarily by optimizing their steam heat sterilization process by strict monitoring of the F0 value they increased product quality. The flexibility of the DT80 and the capability to perform the F0 calculations as the data was being recorded were distinct advantages over simple data logger devices. The DT80 also proved to be a cost-effective solution expandable to 100 channels, 200 isolated or 300 single-ended analog inputs, in case the mill expanded operations and required further connections of thermocouples.



The system's built-in web and FTP server allowed for remote access to logged data, configuration and diagnostics. Communication features included Modbus slave and master functionality allowing connection to Modbus sensors and devices as well as to SCADA systems. The data logger also featured smart serial sensor channels capable of interfacing to RS232, RS485, RS422 devices and sensors. The DT80's rugged design and construction ensured its reliable operation even under extreme conditions in the mill. USB memory stick support was included for easy data and program transfer, satisfying the customer's data download needs.

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For more information on [dataTaker Universal Data Loggers](#), steam heat sterilization 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).