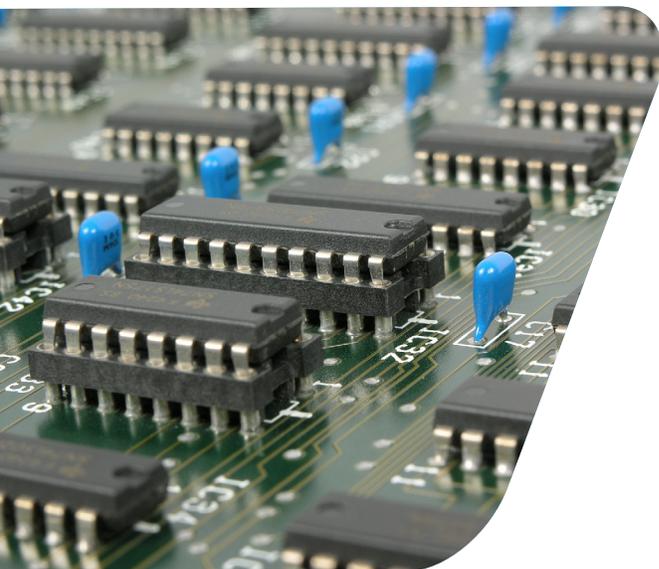


## SIMULTANEOUS MONITORING OF REFLOW SOLDERING TEMPERATURE DATA FOR TWO MANUFACTURING PLANTS

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### INTELLIGENT DATA LOGGERS PROVIDE DISTRIBUTED MONITORING



A manufacturer of custom circuit boards operates [solder reflow lines](#) in two manufacturing plants located about a quarter of a mile apart. The plant manager of Plant #1 needed to closely monitor temperatures during the reflow soldering process while sharing recorded data (including temperature, airflow, line speed, etc.), with the manager of Plant #2. The customer had three older 48-channel chart recorders installed in each plant (for a total of 144 channels). The process was managed by exchanging information via email, phone calls, and faxes between the plants; therefore, the managers were required to exchange critical data via a process subject to time-consuming bottlenecks. The plant managers also had to assure all other staff members access to much needed information from both plants to increase quality and productivity.

### INSTALLATION

Because the chart recorders were quite old and due for replacement, CAS recommended the customer install a more robust, modern system that accommodated the existing sensors, had room for growth, was self-operational, and could share data between the two locations. A [dataTaker DT80](#) data logger was installed in each plant,

along with four [dataTaker CEM20s](#) (Channel Expansion Modules), bringing the total capacity of each DT80 unit to 162 two-wire differential universal analog inputs. Each dataTaker logger was equipped with a [Maple Systems 15" HMI](#) for local dedicated displays of the data gathered by the sensors attached to the logger. Communication between the logger and display was done using Modbus TCP, taking advantage of the default mapping of all measured data to Modbus registers.

Both dataTaker DT80s were connected to their plant's internet so any computer on the same network could connect and view the data from either plant. Provisions were also made in the network firewall in each plant to allow remote access to the data share through the company's Internet Service Provider. Now, all staff, whether on or off-site, are now able to go online and view the data, giving them instant access to the actual conditions and productivity of the two plants in real-time.

## USAGE

The DT80 Data Loggers offer Ethernet, USB, or RS-232 communication with PCs. Connections can be established locally, remotely or over the Internet. USB memory stick support is standard, as well as support for serial sensor networks, internal web, and FTP servers. To enable data acquisition from the large number of existing sensors, each of the four CEM20 units feature up to 60 analog inputs. A single channel of a CEM20 unit can be used for 2 differential inputs or 3 single ended inputs sharing a common ground or a 4-wire sensor input - a very cost-effective and flexible solution for acquiring analog sensor data in any project.



## BENEFITS

The customer saw communication between the two plants increase immediately after installing the 2 DT80 units. All data acquisition in each plant is now managed and organized by one self-contained data logger, which connects to every sensor in the building through its CEM20s. Moreover, each plant's data is prominently displayed on the Maple HMI display. Furthermore, the DT80 data loggers, connected with their building's Ethernet network, enable any company PC to login and access all data.

Even more options are available if the customer needs change. Additional Maple Displays can be utilized to show more data in additional locations. If unattended monitoring is desired, alarms on a measurement-by-measurement basis can be configured for the DT80 units to alert key personnel by email or text to potential problems or to notify staff via a local alarm indicator like a light or buzzer. Currently, up to 5 CEM20 units can be connected to the DT80 loggers, but if the customer anticipates having to monitor more sensors, the DT80 units can be upgraded to the larger 16 channel [DT85](#) logger, which support up to 16 CEM units for a total of 960 single-ended or 640 differential inputs.

Other areas of application for these intelligent data logging products include process monitoring, temperature profiling, R&D, energy monitoring, pressure recording, flow rate and totalization, and environmental monitoring.

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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](http://www.DataLoggerInc.com).