

MEASURING SURFACE TEMPERATURE OF COOLING METAL FOR QUALITY WELDS

dataTaker DT82I DATA HELPS PREVENT METAL DEFORMATION

[CAS DataLoggers](#) provided the dataTaker datalogging solution for a welding company manufacturing a wide variety of metal parts. In many of their jobs workers needed assistance measuring surface temperature of long lengths of pipe. The high heat applied during the welding process distorts and warps the metal as it cools, so welders first have to preheat the metal before welding. During preheating the metal reaches temperatures as high as 800°F before it's ready to weld; afterward the metal cools and structural stress is released. While on the job, workers needed a temperature monitoring system to display the metal temperature and ensure a quality weld.



INSTALLATION

The business sourced a [dataTaker DT82I Industrial Data Logger](#) from CAS DataLoggers, enclosed in a Pelican case with a small display mounted to the lid of the case. DataTaker dataloggers feature universal inputs allowing temperature measurement from thermocouples, RTDs and thermistors so that users can monitor temperature across a wide range. Operators can utilize up to 4 isolated or 6 common ground referenced analog inputs in many different combinations. For this application, the dataTaker is connected to a pair of magnetic mounts, Type K [thermocouple](#) surface temperature sensors that are positioned onto the surface of the metal near the planned joint. These surface temperature sensors monitor the temperature of the length of metal before workers begin, helping to ensure a smooth weld.



COMMUNICATIONS

The standalone dataTaker DT821 is designed for industrial applications that require a variety of mixed input types. Almost any type of sensor can be directly accepted by the analog inputs; temperature, pressure, strain, load for example. High speed and low speed counter inputs, quadrature encoder inputs and digital states are also directly sensed and MODbus serial and TCP make this an ideal solution for temperature monitoring of equipment and

process control applications. DataTaker loggers feature USB, RS232 or Ethernet communications with built-in WiFi and cellular modem options also available.

DATA STORAGE AND DOWNLOADING

While on the job, users are periodically measuring surface temperature of the metal on the dataTaker's built-in display. When metal temperatures are in the right range, workers know that the metal is ready for welding. In this way the work is completed without excess time or guesswork as to the readiness of the material.

DataTaker dataloggers can determine out of tolerance conditions and transmit warning messages, archive data on alarm events, or execute any dataTaker command to change how the data is recorded. In industry this allows for sophisticated automated responses to faults, machine downtime and other potentially disastrous process indicators.

As they work, users are able to leave the dataTaker unattended to run for extended periods on its internal battery. Meanwhile dataTaker's rugged design ensures that the data logger has durable protection against accidents in this unsecured environment. The DT821 can store up to 10 million data points in internal memory so there's no need to add memory cards in the middle of a job. When the memory is full, users just copy the data to USB stick as proof of best practices.

SOFTWARE

Using the dataTaker's built-in dEX web interface, operators can configure the data logger, view recorded temperature data, and retrieve historical data for later analysis. dEX runs directly from a web browser and can be accessed either locally or remotely including over the Internet.

BENEFITS

In this application the dataTaker industrial datalogger has proven to be an effective business solution for measuring surface temperature. The DT82I's ability to record temperature, display current readings, and store the data for quality assurance purposes—all unattended—makes it a logical choice. All in all, the DT82I forms a completely self-contained solution which also includes graphical interface software.



For further information on the [dataTaker DT82I Industrial Datalogger](#), [other dataTaker models](#), or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.