APPLICATION NOTE

CAS DATALOGGERS

Monitoring Train Braking System to Prevent Damage

dataTaker Data Logger for Railroad Preventative Maintenance

An Alaskan railroad company had been experiencing problems stemming from vibration in the railroad car wheels and wanted to monitor their train braking system. They were aware that when too much heat developed during braking, the wheels could seize and subsequently develop flat spots. Flat spots resulted in vibration; an undesirable condition leading to additional maintenance involving their railroad car wheels. The challenge for the staff was to determine how these excessive heat conditions developed because of braking over time and the duration of a trip.

When considering a solution, they had several factors to consider. They would need a data logger capable of recording data over a minimum of 12 hours at five-second intervals. If the test were to be used on another route, they could very well require significantly more memory capacity than the approximately 8,400 readings required for this test.

Another factor was that a simple, dedicated temperature data logger would not be up to the task for monitoring a train braking system. A more robust, universal data logger capable of multiple inputs from various sensors would be needed to handle the different possibilities and conditions. The basic temperature measurement for this test would have to be accomplished using some sort of non-contact sensors. Also, the data would have to be easily accessible at the end of the trip for quick and easy analysis on a computer.

Finally, any solution would have to be capable of withstanding the Alaskan environment, the physical punishment of shocks, bumps, and vibrations of the rail route and the overall extreme conditions of the test.

Installation

The solution was to bundle multiple sensors including non-contact infrared sensors for multiple wheel temperatures, sensors for ambient temperature and other environmental conditions with the dataTaker DT80 Universal Intelligent Data Logger. Given its storage capacity of more than 10 million recoded readings, the DT80 was capable of handling any number of sensors and any length trip that might be required in the future. With the universal analog input capability of the DT80, any combination of digital, 0-5V or 4-20mA signal from various sensors was easily accommodated. In addition, serial or MODbus connections to smart sensors extends the devices from which the DT80 can record data. The DT80 was powered with an internal and external backup battery to prevent any interruption of the test.

The DT80 can communicate via Ethernet, Serial or USB. In this application, a USB Flash Drive was used to immediately transfer the data at the end of the trip. Data was uploaded to a PC with the dEX software installed for analysis.

For more information on dataTaker Universal Data Loggers, a train braking system, preventative maintenance 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.