APPLICATION NOTE

CAS DATALOGGERS

Heat Soak Test Verifies Prototype Vehicles

Reliable Satellite Communication Enables Remote Access to Data

A vehicle manufacturer used a unique data logging solution to help perform a series of rigorous tests on its prototype vehicles. The most punishing of these tests is called 'Heat Soaking—here the vehicle is parked outside in a desert facility and left over an extended period. During this heat soak test, the vehicle's internal temperature and other parameters need to be measured and recorded as they react to the hot, dry environment. With this in mind, the company's lead automotive test engineer required a rugged data logger that could be powered by a solar system and to which a satellite data modem could be attached to automatically transmit the data. Needless to say, this data logger device would also need to be able to withstand the desert heat!

Installation

CAS DataLoggers supplied the customer with a dataTaker DT80 Universal Data Logger for automated measurement and remote data transmission. The DT80 is a standalone data logger with analog, digital, and serial data recording capabilities, expandable up to 100 channels as needed.

DataTaker data loggers use a dual channel concept allowing up to 10 isolated or 15 common referenced analog inputs to be used in different combinations. The system's universal inputs allow users to connect with many sensor types to log nearly any value including Temperature, Current/Voltage, 4-20mA loops, Resistance, Bridges, Strain gauges and more.

The lead test engineer placed thermocouple temperature sensors both inside and outside the test vehicle to monitor its surfaces as they rapidly heat up each morning. Meanwhile, the vehicle's radiation exposure is measured using a global radiation sensor. Both of these types of sensors plug directly into the DT80 without requiring any other hardware.

The dataTaker DT80 has communications ports for Ethernet and RS-232 communication with a PC. The dataTaker has a large internal memory storing up to 10 million readings which ensures that the heat soak test will be recorded in its entirety for later analysis. The user has connected his satellite modem to the Ethernet port, so it is easily accessible using a static IP address provided by the satellite network. The dataTaker also includes USB memory stick support for quick data and program transfer, which will later be used in some of this manufacturer's more traditional laboratory tests.

Standalone and Durable

Throughout the heat soak test, dataTaker's world-famous ruggedized design and construction provides reliable operation even under harsh desert conditions. The DT80 system is powered by external batteries which are charged by solar cells and a solar conditioner. Providing that this solar system is specified well enough to keep the batteries charged, the whole dataTaker system can monitor and record test conditions for months at a time within its enclosure in the middle of the desert without any human interaction. That's a feat few data loggers can match!

Remote Data Transfer

Given that the data logger is connected to a satellite modem, the built-in dataTaker web interface (dEX) is available online from anywhere in the world, saving costly time otherwise spent traveling back and forth to the DT80.

Without needing any additional software and after minimal configuration, the lead engineer has scheduled the DT80 to automatically upload all recorded data to an FTP server once a day. This gives him remote access to recorded data, configuration details, and alarm events. Alternatively, he can log onto dEX and retrieve the data on demand.

Test Benefits

Having a single system handle data measurement, communication and storage are very cost-effective, especially given the system's high durability in this punishing environment. Additionally, the DT80's ease of use has ensured that the application has gotten off to a fast start. Test data will be used to accurately evaluate vehicle stagnation temperatures for use as the basis for further accelerated environmental testing programs.

For more information on dataTaker Universal Data Loggers, a heat soak test 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.