dataTaker

Application Note

Satellite Communication in the Desert

Customer Requirements

The customer, a vehicle manufacturer, performs a series of tests on prototype vehicles. One of these tests is called a "Hot Soak", in which the vehicle placed in a hot dry environment for a period of time. During this test the internal temperatures of the vehicle and other parameters are required to be measured and recorded. The customer requires a rugged logging solution that can be powered by a solar system and to which a satellite data modem may be attached.

Red dunes: The desert is the perfect place to test the real effects of extreme temperature variance on materials used in vehicles.

dataTaker DT80

1. A cost effective data logger expandable to 100 channels, 200 isolated or 300 single-ended analog inputs
2. Built-in web and FTP server allows for remote access to logged data, configuration and diagnostics
3. Modbus slave and master functionality allows connection to Modbus sensors and devices and to SCADA systems
4. Smart serial sensor channels capable of interfacing to RS232, RS485, RS422 and SDI-12 sensors
5. Rugged design and construction provides reliable operation under extreme conditions
6. Includes USB memory stick support for easy data and program transfer

dataTaker Solution

Equipment

dataTaker DT80 data logger
Satellite modem
Solar cells and solar conditioner
External batteries

Sensors

Thermocouples
Global radiation sensor

Implementation Notes

Thermocouples are placed such that the surfaces on both the inside and outside of the test vehicle can be monitored. The radiation exposure of the vehicle can be measured using a Global radiation sensor. Both of these types of sensors plug directly into the DT80 without any mediating hardware. The satellite modem connects to the Ethernet port on the DT80 and is accessible using a static IP address provided by the satellite network.

The system will be 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 system could monitor and record for months at a time without any human interaction. Given that the logger is connected to a satellite modem, the *dataTaker* web interface (dEX) will be accessible anywhere in the world, saving costly travel time.

Without any additional software and with minimal configuration, the DT80 can be scheduled to upload recorded data to an FTP server at regular intervals. Alternatively, the evaluation team can log onto dEX and retrieve the data manually. This data can then be used to evaluate vehicle stagnation temperatures and used as the basis for further accelerated environmental testing programs.

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