



#### Case Details

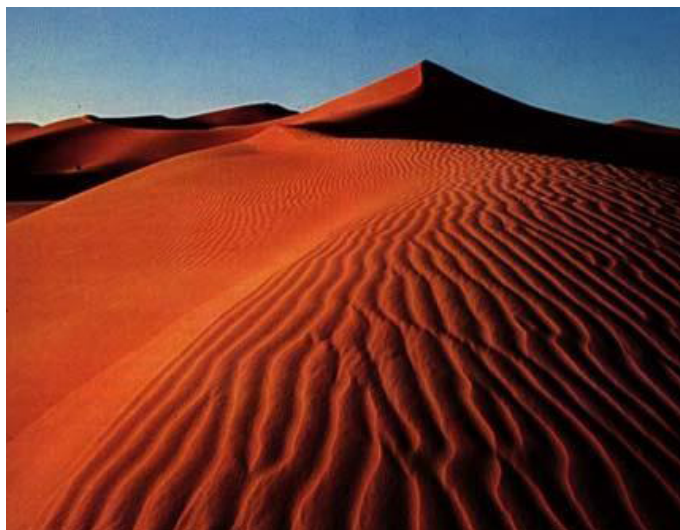
Recently a vehicle manufacturer used a unique data logging solution to help perform a series of rigorous tests on its prototype vehicles. The most punishing of these tests is called the 'Hot Soak'—here the vehicle is parked outside in a desert facility and left over an extended period. During this test 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!

#### Key Requirements

Remote, rugged monitoring solution

#### 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



**The desert:** The perfect place to test the detrimental effects of extreme temperature variance on materials used in vehicles

#### dataTaker Solution

##### Equipment

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

##### Sensors

Temperature  
Global radiation

##### Implementation Notes

CAS DataLoggers supplied the customer with a dataTaker DT80 Data Logger for automated measurement and remote data transmission. 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 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 plastic enclosure in the middle of the desert without any human interaction.

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 manually.

The dataTaker DT80 has a large internal memory storing up to 10 million readings which ensures that the hot soak test will be recorded in its entirety for later analysis.