

Automatic Gearbox Test Rig With a dataTaker DT800 Data Acquisition System, DataLogger and Controller All In One Device

CHESTERLAND OH—September 26, 2011

CAS DataLoggers recently provided the data logging solution for an automotive gearbox repair company which needed to automate their gearbox testing facility to improve quality, reduce costs and increase productivity. The interface to the test machine was an 8-bit parallel bus and therefore a logging solution that could output digital bytes was necessary. The device would also need to be user-programmable with real-time capability in order to spot gearbox failures as they happened and initiate a safe shutdown routine to increase worker safety as well as prevent gearbox damage.



The repair company installed a **dataTaker DT800 Intelligent Data Acquisition System** in their gearbox testing facility, connecting it to sensors recording pressure, RPM, and power. Offering high-speed data logging, multiple versatile channel inputs and a large storage capacity, the DT800 also performed real-time data acquisition. The DT800 also featured up to 42 universal analog sensor channels as well as 16 bi-directional digital channels and a serial sensor channel for sensors with RS232/485 or SDI-12 capability. These were isolated and over voltage protected, with measurement across 12 auto-scaling ranges from 10mV to 13V full scale. This flexible solution supported all common measurement types, including DC and AC (RMS) voltage, current, resistance, temperature, bridges, strain gauges, 4-20mA loops and frequency. Storing up to 130,000,000 data points, the DT800 data logger acted as a stand-alone solution performing remote monitoring and control, featuring an ATA Flash PC card slot for removable data storage. Additionally, the dataTaker DT800 featured fatigue cycle counting and a removable terminal base assembly.

Each make and model of gearbox had a unique gear shift sequence that was selected before the test was initiated. By connecting the 8-bit parallel bus lines to the DT800 digital I/O lines, commands could be sent to the sequencer. The DT800 data logger controlled the tests by outputting digital bytes to select a speed, to sequence through the gears, and to take measurements of the performance parameters. The next test speed was then selected and the test sequence was repeated.

The DT800 served as a robust, durable unit recording at 16-bit resolution and operating on either internal battery or battery-backed internal SRAM 12V, and featured a powerful operating system and internal file structure. Communications options included Ethernet and serial communication. Additionally, the DT800 was able to be programmed to recognize a gearbox failure and initialize a safe shutdown routine to reduce damage to the gearbox under test as well as the test rig and nearby personnel. A report of the test results was produced once the test was completed.

The automotive repair company benefited in several significant ways following installation of the DT800 datalogger in its gearbox test facility. Performing the roles of data acquisition system, data logger and controller, the DT800 recorded gearbox pressure, RPM, and power; controlled all the tests; and caught gearbox failures and utilized shutdown routines before damage or injuries occurred. The DT800 could output digital bytes and also measured and monitored the gearboxes in real-time.

To see more universal input dataloggers, check out the CAS product overview at http://dataloggerinc.com/categories/Universal_Input_Data_Loggers/9/

For further information on the dataTaker DT800 data acquisition system, additional dataTaker data loggers, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Applications Specialist at (800) 956-4437 or visit the website at www.DataLoggerInc.com.

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