

AUTOMATIC GEARBOX TEST STAND INCREASES PRODUCTIVITY

DATA LOGGER, DATA ACQUISITION SYSTEM & CONTROLLER ALL IN ONE DEVICE



CAS DataLoggers provided the [high-speed data logging](#) solution for an automotive gearbox repair company which needed to automate their gearbox test stand 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.

INSTALLATION

The repair company installed a [dataTaker](#) DT800 Intelligent Data Acquisition System (discontinued) in their gearbox testing facility, connecting it to sensors recording pressure, RPM, and power. Offering high-speed data logging, multiple versatile analog input channels 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 voltage, current, resistance, thermocouple, bridges, strain gages, 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.



USAGE

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 wall power, 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 gearbox test stand and nearby personnel. A report of the test results was produced once the test was completed.

BENEFITS

The automotive repair company benefited in several significant ways following installation of the DT800 data logger in its gearbox test stand. Performing the roles of data acquisition system, data logger and controller, the DT800 recorded gearbox pressure, RPM, and power; controlled all the tests; and identified 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.

For more information on our [dataTaker Intelligent Data Acquisition Systems](#), a gearbox test stand 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.