

Transmission Test Rig

accelerates longevity testing

test & measurement

custom electronics

engineering software

data management



defence & aerospace

consumer goods

environment

mining

ICT

energy

agriculture

biotechnology

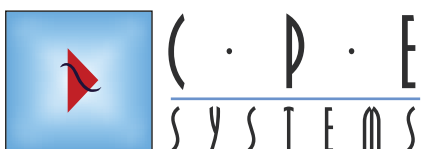
transport & automotive

Challenge

Drivetrain Systems International (DSI), a designer and manufacturer of automatic transmissions for passenger vehicles, approached CPE to devise and implement an updated longevity test rig for their 4, 6 and 7-speed automatic transmissions.

The existing 4-speed Spin Fatigue Rig used an embedded control system that offered little in the way of test data and product indicators, could not be feature-added or adapted to the new 6-speed products, and was deemed unsafe.

CPE proposed a new system to provide DSI with the scalability to perform parallel testing of two different transmission products, observe operations via an intuitive user interface, record important test data and enhance operator safety, whilst continuing to ensure robust real-time control.



Solution

CPE prepared a detailed set of requirements before designing, developing and supporting the operation-critical, real-time software. DSI was able to reuse the existing structure to host the transmission, which had a motor and fan assembly, as well as pressure and temperature sensors.

CPE used a Process Automation Controller as the central control mechanism for the test rig. The system was designed to perform the following functions:

- Real-time deterministic control
- Sensor monitoring - pressure, temperature and safety
- Remote monitoring - web server
- Manual gear control
- Real-time position analysis - quadrature encoding
- Engine control unit simulation

The test rig has provided DSI design engineers with valuable insight into the wearing of hydraulic and soft components, allowing them to improve their production design and costs.

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