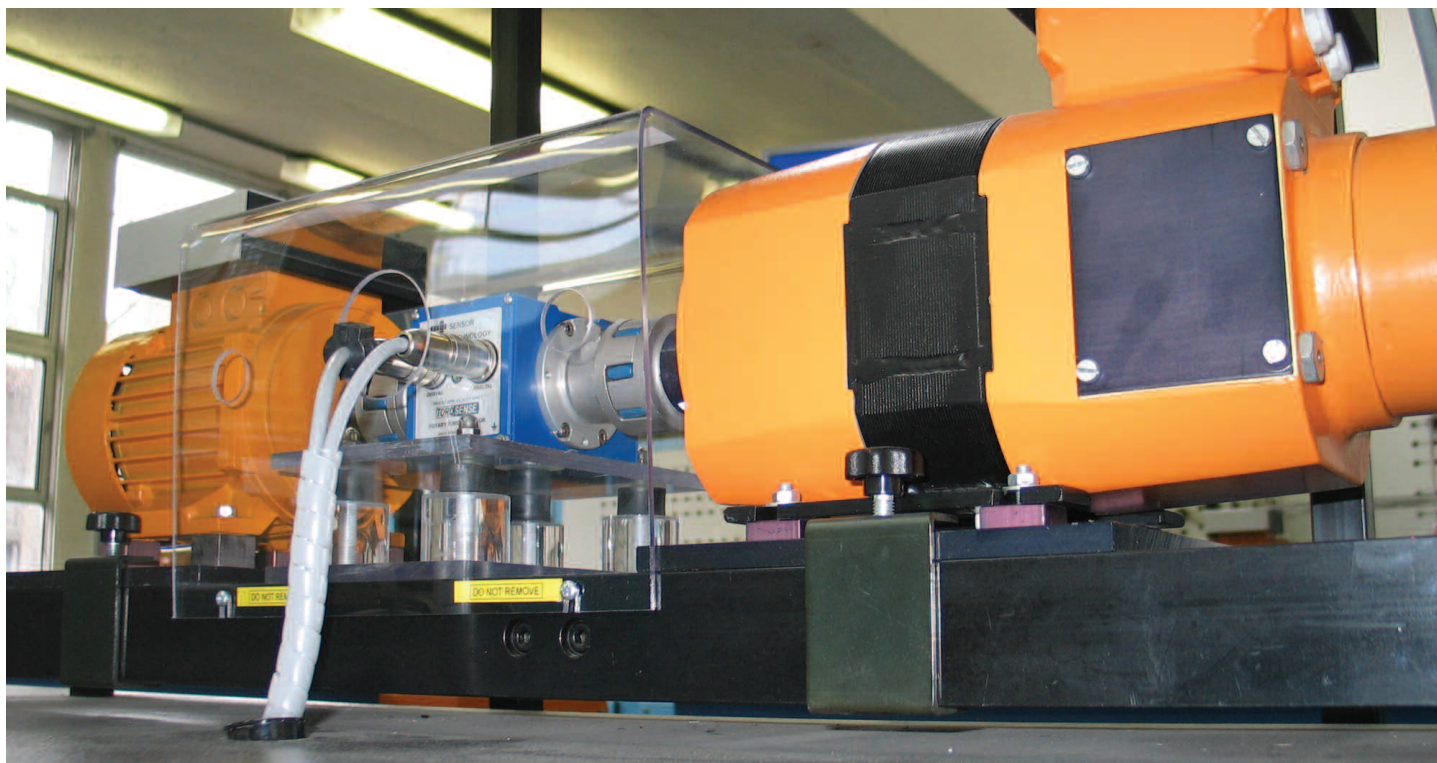


# Automotive Innovations Torque Up Manufacturing

The automotive sector is proving to be a powerbase for the reviving manufacturing economy. Volume car makers have full order books and specialists builders are enjoying record exports. But to maintain this vital economic activity, constant innovation is needed.



It has taken time, spiralling costs and considerable legislation, but today's motorists are now keen to ensure that their cars are both clean and economical. And the pressure is on to steadily reduce vehicle emissions over the coming years to develop new generations of high performance, low emission power plants new high capability test beds that simultaneously monitor multiple parameters have been developed.

Tony Ingham explains: "An engine's torque is its fundamental characteristic and previous methods of measuring it are not good enough for today's demands. So we at Sensor Technology have developed TorqSense, a non-contact digital technology that can be set up in minutes and feed straight into TorqView software to produce data customised to each job. This allows the automotive engineers to concentrate on their development work rather than

having to worry about the mechanical details of running tests.

"There are some really original thinkers working on engine design these days. They need like-for-like comparisons of the performance of petrol engines, diesel engines, LPG engines, electric motors, generators and regen units. Quite simply, TorqSense is their favourite way to do this."

Typically, a modern test bed needs to be able to monitor all rotating shafts within various hybrid configurations of IC engine and electric machine in moments. Old fashioned belt measurements and strain gauges are difficult to set up and use, whereas TorqSense is a direct in-line mount that gives plug and play levels of ease and efficiency.

TorqSense uses two tiny quartz piezoelectric combs, called Surface Acoustic Wave (SAW) devices, whose resonance frequency changes with

torque. This can be measured using a wireless radio frequency coupling and instantly converted into test data.

"Motor testing is completely straightforward with TorqSense," says Tony. Its digital signals and non-contact operation, easy set up and automatic analysis means test regimes can be executed with the utmost efficiency."

For example, Lotus Engineering has always been at the forefront of automotive developments and has worked with Elektro Magnetix (EMX) of Brighton to develop a new hybrid power plant. Mapping the full performance range was an essential part of the project, but with a tight development timetable, testing had to be simple and effective.

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Enquiry No. 13