Press Release

Breakthrough infra red sensor provides accurate carcass temperature for tyre development

High accuracy and high resolution IR sensor critical for optimising tyre parameters for new tyre development

A new infra red sensor that records accurate tyre carcass temperature has been developed by TPMS specialists BERU f1systems. For the first time, DigiTyre IR provides accurate temperature and pressure data unaffected by heat soak from the rim and brakes.

“Tyre temperature sensors are normally fitted to the rim as part of the valve,” says managing director John Bailey. “Heat soak from the rim and brakes distorts results from a traditional wheel sensor. Our system uses IR sensors to measure the inside temperature of the tyre itself, not air temperature. Engineers will now be able to correlate accurate tyre carcass temperature to wear, traction and loading.”

Information about the tyre carcass temperature could also help to identify tyre deflation issues quicker too. “There is a chain of events when a tyre deflates,” says Bailey. “If a tyre develops a puncture, tyre and air temperatures rise with a short lag between the two. Traditional systems only measure air temperature; our new system will receive data about changes to the carcass temperature, so we could determine a puncture a little earlier.”

The system offers excellent resolution (0.25ºC) and accuracy (0.5ºC) across an extended temperature range (-40 ºC to 215ºC). The wheel sensor transmits pressure, air and tyre temperature at 1Hz, via antennae to the ECU. Existing BERU f1systems’ customers can simply upgrade their existing TPMS with new wheel electronics and software. The system is also compatible with CAN bus, making its use in OEM applications equally relevant.

The sensor also includes a Low Frequency (LF) receiver allowing engineers using remote devices to receive data. This also allows tyre temperature and pressure to be monitored when the wheels are not fitted to a vehicle but on dynos or test beds.

The system is now being tested in F1 where tyre setup and pressure is essential to lap times and race success. For tyre manufacturers, the IR sensor will provide information on how tyre temperature affects tyre performance and wear.

BERU f1systems provides tyre pressure monitoring systems to leading motorsport and OEMs, both in the road and commercial vehicle markets.

About BERU f1systems

Founded in 1993 and since 2001, a specialist division of BERU AG, BERU f1systems offers advanced design and manufacturing facilities for vehicle wiring harness systems, tyre pressure monitoring, stress measurement and composites. Supplied to world championship winning cars in every major formula and every Formula 1 team, components from BERU f1systems are now available in military, road car, aerospace and nautical applications. In January 2007, BERU f1systems won the prestigious Autosport International Innovation of the show for its Wire in Composite technology.

Photographs

Available from Nick Bailey email (see below)

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