bf1systems LF Learning Tyre Pressure Monitoring System

The bf1systems LF learning TPMS provides teams with a fit and forget Tyre Pressure Monitoring System (TPMS) due to its ability to automatically learn the wheel sensors fitted to the car, and start monitoring them, without the user having to assign sensors to specific corners, manually.

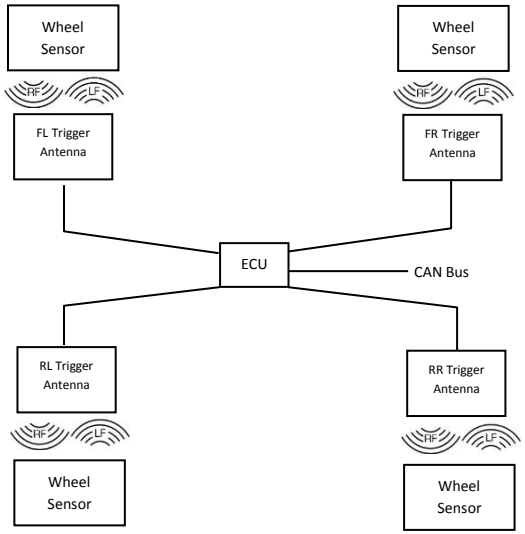
The system consists of four Low Frequency (LF) Trigger Antenna units, one of which is located in each wheel arch. The LF Trigger Antenna broadcasts a request signal over a range of approximately one metre, and any wheel sensor within that vicinity responds by transmitting a Radio Frequency (RF) datagram back to antenna which is part of the Trigger Antenna, one of which is mounted in each wheel arch.

The ECU which is connected to the LF Trigger Antennas uses each in turn to allow it to determine what sensors are fitted to the car, and when the car is stationary, uses the unit to request datagrams from the wheel sensors. This means that even when a car is stationary in the pits, data from the wheels fitted to the car is be available.

When the vehicle starts moving, the system conducts a check of the wheels it has learned by using the accelerometer inside the wheel sensors to filter out any non-moving wheels (e.g. spare wheels fitted to the car), and learns only a complete set of moving sensors. When the wheels on the car are changed, the system will automatically learn the new sensors fitted to the car, and will start monitoring these, meaning no user interaction is required.

All data acquired by the TPMS on the tyre pressures and temperatures, plus warnings, is made available on the high speed CAN bus connection (baud rate configurable).

The Trigger Antenna is compatible with both the DigiTyre and DigiTyre Lite ECUs, meaning that a fit and forget TPMS which requires no user intervention, and allows teams to fit any wheel sensor to any corner of the car without connecting to the ECU, can now be fitted to all closed wheel race cars, ranging from GT3, GTE and GT4, through to LMP1, LMP2, LMP3 and touring cars.



Specification

Components Required (per car)

- 1 x ECU
- 4 x LF Trigger Antenna
- 4 x Wheel Sensor & Valves

Operating Temperatures

- ECU – -40°C – +85°C
- Wheel Sensor – -40°C –+150°C
- Trigger Antenna – -40°C – +105°C

Supply Voltage

- ECU – 12V switched ignition
- Current – <300mA

Wheel Sensor

25mbar/bit Sensor

- Pressure Range – 0 – 5.375bar gauge
- Pressure Resolution – 25mbar/bit
- Accuracy - ±25.0mbar

14.7mbar/bit Sensor

- Pressure Range – 0 – 3.631bar gauge
- Pressure Resolution – 14.7mbar/bit
- Accuracy - ±29.4mbar

- Temperature Range – -40°C – 175°C
- Temperature Resolution – 1°C/bit
- Accuracy – ±1°C
- Transmit Rate (moving) – 1Hz
- Mass – 30g

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