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Motorsport Tyre Monitoring System TMS®

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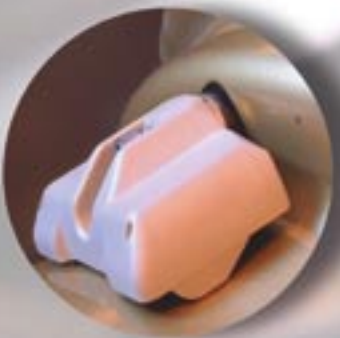
Brightwater Technologies Motorsport Tyre Monitoring System TMS®

- *Real-time measurement of tyre pressure & temperature*
- *Ready to connect to all data logging systems*
- *Sensors replace existing tyre valves*
- *Optional driver display with alarm indicators*
- *Sensor options for the requirements of motorcycles*

The Brightwater Technologies Motorsport Tyre Monitoring System TMS® allows accurate real-time measurement of tyre pressure and temperature providing the safety benefit of early puncture detection and the performance benefit of accurate pressure monitoring whether the car is in the pit or on the circuit.

The system is designed to connect to the car's data-logging unit supporting either analogue, CAN or RS232 interfaces. Ready connectivity is offered for most systems. A stand-alone display system is available with LCD readout and alarm warning of pressure loss.

TMS® has been used by leading FI constructors since 1999. Now, new developments mean the system is both more affordable and simple to install on any race vehicle.





Benefits

The early detection of a puncture allows the driver to pit at the first opportunity whilst also monitoring the pressure loss and driving accordingly. The driver can also be alerted if he has picked up a puncture after running over track debris or be confident to maintain his pace.

The driver will be aware when his tyres have reached optimum pressure/temperature, e.g. when starting a new run or after following the safety car. He will also know if a handling problem is due to incorrect tyre pressure.

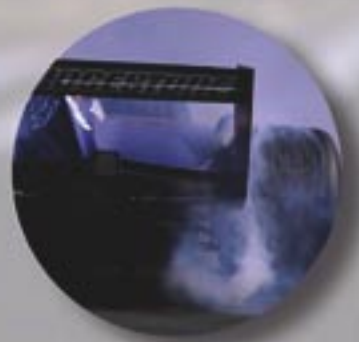
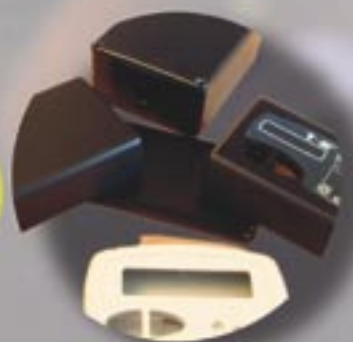
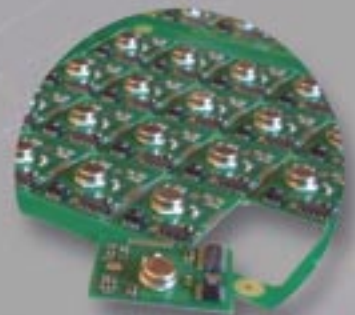
Installation

The TMS[®] uses sensors that are attached to the wheel rim in place of the standard valves. These continually monitor pressure and temperature, transmitting a low power FM radio signal to an on board receiver. The sensor transmit interval is adaptive, thus allowing almost instantaneous update of the system when there is a variation in pressure, 500mS, extending to 10sec updates when the pressure is stable. This adaptability minimises battery drain, allowing several seasons of use between replacement.

The TMS[®] uses a unique coding technique, which allows the automatic identification of wheel position, and ensures reliable error-free reception of measurements. The TMS[®] receiver, when connected to the cars data-logger provides real-time pressure and temperature for each tyre. This data is then available for display, recording, or transmission by telemetry as required. The TMS[®] receiver can be optionally ordered with an integral LCD read out and low pressure alarm indicators.

For applications that do not require a data logger interface Brightwater Technologies offer a stand-alone TMS[®] receiver with LCD driver read out and low pressure alarm indicators.

Brightwater Technologies offers the TMS[®] with a range of optional sensor housings for differing wheel rim configurations such as those found on motorcycles or trucks.



TMS® Sensor Specification

Pressure sensor range	Pressure Range		Pressure Resolution	
	psi	(bar)	psi	(mbar)
	0-30	(2.07)	0.15	(10)
	0-50	(3.45)	0.25	(17)
	15-25	(1-1.8)	0.07	(5)
Temperature range	Range	Resolution		
	0-128°C	0.5°C		
Weight	30g (without valve stem)			
Sampling interval	0.5 sec			
Fast transmit interval	0.5 sec			
Slow transmit interval	10 sec			

TMS® RF Specification

Emission Category	MPT1340 and ETS 300-220
Centre frequency	433.92MHz
Effective radiated power	-6dBm (0.25mW into 50Ω)
Typical Transmission range	50m (free space)

TMS® Receiver Specification

Sensor Recognition	32 sensors (optional PC software for management of large sensor inventories)
CAN Interface	Conforms to CAN 2.0B 11 or 29 bit identifiers, programmable Bus rate up to 1Mbit/sec (Available pre-configured for most data logger systems) Sensor Variables: Pressure, temperature & diagnostics
RS232 Interface	9600 Baud Sensor Variables: Pressure, temperature & diagnostics
Analogue Interface	4 x analogue 0-5V Sensor Variables: Pressure or temperature
Main Connector	AS6-10-35PN
Antenna Connector	SMB
Antenna	Single 1/4 wave
Main Alarm	200mA Open Collector
Display option	LCD, Pressure or temperature selected corner, 4 x alarm LED
Note	Detailed data sheet & installation drawings available on request.

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