

MS2.9

At Bosch Motorsport, the abbreviation MS2.9 stands for an engine management system that is put to use in professional motorsport. Racing teams can use the MS2.9 to record and process telemetry data. But how does the valuable and sometimes race-deciding data get from the racing car to the engineers' computers? With artem's wireless technology.



Every Second Counts

There are very few sports in which so much information is collected and processed as in professional motorsport. Oil pressure, fuel consumption, engine speed, and so on. All information that, with the correct interpretation, can mean the difference between winning and losing. Therefore, it all depends on being able to transmit the information without error, to evaluate it, and to react accordingly. And, as is often the case with motorsport, this must happen very quickly and as close to real-time as possible, because in the end, every second counts.

One Goal, Two Paths

The MS2.9 is an intelligent engine management system that allows the race-team engineers to collect, analyse and react to telemetry data. The Bosch system offers two different methods to transmit the collected information from the racing car to the engineers' computers. The first method is via a flashcard that is removed from the vehicle during a pit-stop and read by a special reader attached to the PC. Custom Bosch software analyses the collected data and assists the racing team in making decisions about how to continue in the race.

Close-to-real-time Wireless Data Transmission

Just like the flashcard system, the wireless solution uses a datalogger to capture the data. It is then sent via a Serial Peripheral Interface (SPI) to an additional PC-based recording device for further processing. This so-called BoardPC is an Embedded PC/104 system, consisting of a CPU and a PCMCIA drive containing an SPI and an artem WLAN card. The dimensions of the system are a

mere 140mm x 110mm x 50mm.

During a race, the collected data is recorded online. Then, as the racing car passes the team's pit, the management system in the car receives an external lap trigger signal. The system closes the lap off, compresses the collected data and saves it in a file - the so-called lap-stack. At the same time, data is again being collected by the datalogger for the newly-started lap. A send-process runs parallel to the data recording. Once the engine management system in the racing car has established a wireless connection to the receiving server, the data in the lap-stack is sent using artem's wireless technology to the raceteam for further analysis. The MS2.9 can wirelessly transmit up to 3Mb per lap using this system.

3Mbyte at 240km/h

Given speeds of up to 240km/h, there are about 4 seconds available in which to transmit the 3Mb each lap.

Bosch Motorsport are currently working on a further development of the MS2.9 called the MS1.10. The new system is file-oriented, which means that the laps are already available as lap-stacks at the time they are recorded, instead of having to wait until the racing car passes the pit. This means the data that the raceteam receives wirelessly from the engine management system is even more current. Because, in the end, a few seconds count.

artem GmbH

Olgastr. 152
D-89073 Ulm, Germany
Phone: +49-731-1516 0
Fax: +49-731-1516 390
info@artem.de
www.artem.de

All product names are trade marks of artem or of the respective owner and will be respective hereby. All statements are valid at the time of publishing and can be changed without any announcements.

©2004 artem GmbH. All rights reserved. Duplications, changes or translations are not allowed without permission of artem.