GPS recorder

The ErgoDrive Professional driver's aid system represents a vital interface to the driver for manned test drives on chassis dynamometers.

Just like in a real driving situation on the road, the test driver is integrated into the process of driving as a controller via the aid system as visual feedback. Desired and actual speed, plus actual and future gradient are presented to the driver clearly and ergonomically, as main values in the ErgoDrive. This enables the driver to carry out his tasks attentively and in a relaxed way for longer periods with reproducible results.

In addition to providing the standard functions, the ErgoDrive Professional is climatic-chamber-applicable. It evaluates special environmental data, and provides recording and processing of GPS data.

Besides the standard test procedures on chassis dynamometers - such as emission tests, fuel consumption measurements, etc - the driver's aid offers new possibilities for time and cost optimization in vehicle testing technology. Connection to a quality system through the driver's aid is possible.

It is also possible to reproduce actual road conditions for the chassis dynamometer for test runs with passenger cars, trucks, and racing vehicles. This makes it possible to optimize gear-shift adjustments or test the cooling capacity on road gradients.

Of course it is possible to record, visualize, save, and evaluate all process values from the chassis dynamometer (e.g. speed, tractive forces, capacity, pressures, temperatures) using Microsoft Excel or National Instruments Diadem via analog or digital inputs, or via fieldbus systems during the testing of the vehicle.

The system is suitable for climatic chambers and environmental data acquisition. The real route, which is to be transferred to the chassis dynamometer, is measured with a vehicle. Route measurement means that the actual position, height/gradient, speed, and additional environmental data such as outside temperature, atmospheric pressure, humidity, and insolation, etc., are recorded and stored in an ErgoDrive Professional profile file.

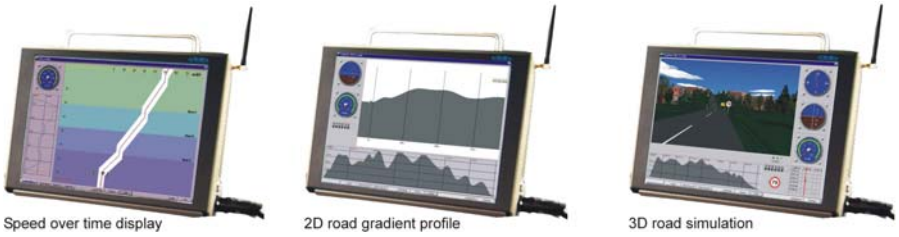

Figure 1: Illustration of the three main modes that are a part of the ErgoDrive Professional system

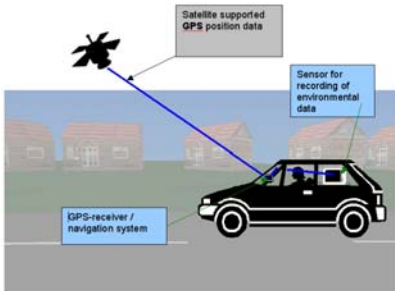

Figure 2: Recording profile- and environmental data that can be found in the real environment

It is not only possible to simulate the actual route gradient on the chassis dynamometer, but also, for the very first time, to determine and reconstruct - in a climatic chamber or wind tunnel - the complete environmental conditions of the actual route, which are influenced by factors such as outside temperature, atmospheric pressure, humidity, insolation, etc. It is even possible to include simulation of sunlight or additional actuators. To achieve this, the ErgoDrive Professional sends the values previously stored in the profile file during the test drive on the route, to the chassis dynamometer during a test run (gradient), to the climatic chamber/wind tunnel (temperature, atmospheric pressure, humidity), to sunlight simulation (insolation), or to further actuators.

In case the data has been recorded with a lower scan rate than is required for the actuators on the chassis dynamometer, a linear interpolation or an interpolation via spline, third order can be chosen.

During the measurement drive on the actual route, it is also possible to save vehicle data from the control devices or from a gradient sensor via the CANbus interface of the ErgoDrive Professional in the profile file or in a log file.

The application of a special hardware platform enables use of the ErgoDrive Professional in temperature ranges of -30 to +60°C.

In order to record the geographic data (length, width, height/gradient), the ErgoDrive Professional supports the NMEA 0183 and NMEA 2000 protocols for the integration of GPS systems. GPS systems with CANbus interface (such as that provided by Caesar) can be used as navigation systems with external interface (such as that supplied by Bosch).

We recommend the application of a navigation system with external interface because the position data transmitted via satellite is compared with the data on the map; this guarantees a high-quality position signal. Due to the fact that navigation systems generally do not supply any information about heights, it is possible to make use of an additional sensor (e.g. barometric) in order to record heights. A GPS sensor with a high height precision can be used as an alternative to the barometric sensor to measure the gradient.

FURTHER INFORMATION

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