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## AUTOMATIC HORIZONTAL POSITION MEASUREMENT OF COMPONENTS

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## AUTOMATIC HORIZONTAL POSITION MEASUREMENT OF COMPONENTS

### Technical Task:

For some components/attachments (especially sensors and actuators) it is important to know the horizontal position. Due to the lack of gravity vectors, it is not as easy to determine the horizontal position as, for example, the vertical position or other rotations and tilts. Therefore, a measurement, adjustment or calibration is usually necessary.

Headlamps e.g.: For the horizontal adjustment (and calibration) of headlamps personnel and/or external devices are necessary. These devices are used to measure or visualise the position of the headlamp. Such devices are e.g. light collection boxes or special camera systems.

### Initial situation:

Either additional superstructures and/or manual work are necessary to determine the position.

In addition, this approach cannot be used to measure or monitor the horizontal position during normal operation.

Headlamps, for example: Either complex structures (e.g. test benches in production) or manual work are required to adjust the headlamps.

### Solution:

The horizontal position of the components can be determined by installing at least 2 digital compasses (e.g. fluxgate magnetometer or MEMS) (see technical implementation).

A digital compass is permanently installed at a fixed point on the body. This serves as a reference. A digital compass is also installed on the respective component. It is important that the horizontal position of the sensor, in an ideal installation, corresponds to that of the reference sensor or that the twist to it is known. If the component is now installed with tolerances (torsion) in the vehicle, the torsion can be calculated by reading out the respective horizontal position. Figure 1 illustrates this principle.

The readout and the calculation are performed, for example, by connecting the digital compasses to a control unit via a bus system.

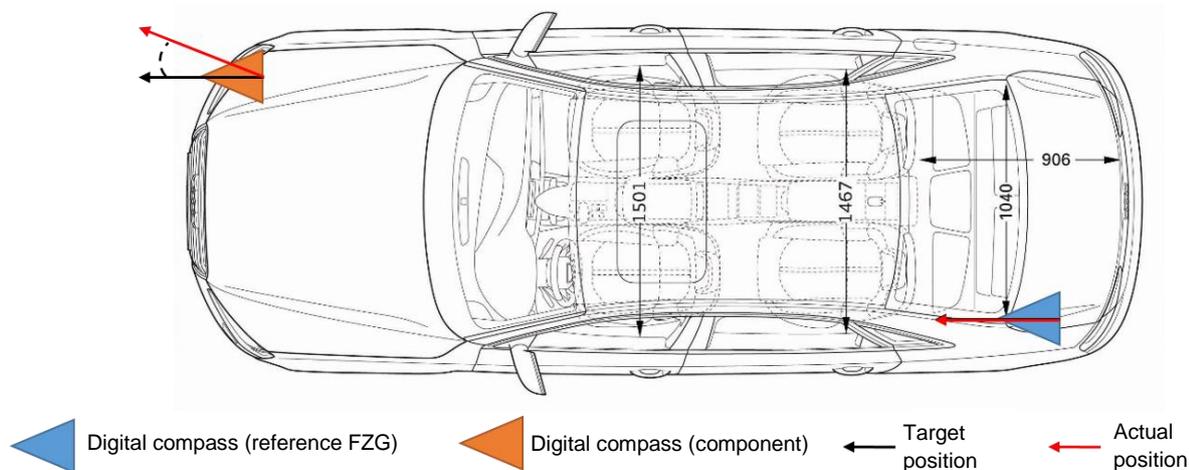


Figure 1

### Advantages:

The automatic determination of the horizontal position eliminates the need for today's methods. This saves costs and effort.

In addition, this approach can also be used to determine the position during operation (at standstill).