

Sensors for position measurement

Combined steering-torque/steering-angle sensor

Hella position sensors using CIPOS technology

An important task of sensor systems in today's vehicles is to determine positions. The wide range of mechatronic systems used in modern vehicles requires position sensors both for reporting the drivers' intentions (measurement of reference values) and determining the state of the engine or vehicle (measurement of actual values).

Alongside established potentiometer technology, Hella also supplies its in-house development, the contactless sensor concept CIPOS (Contactless Inductive Position Sensor). It has been in series production since 1999 and has already proven itself millions of times over. In addition to its insensitivity toward temperature and mechanical tolerances, which is a direct result of its working principle, the straightforward design of the sensor concept is a major advantage of CIPOS. It allows the sensors to be integrated easily and thus implemented economically in the overall application.

Combined steering-torque/steering-angle sensor

Steering-angle sensors measure the angle and/or the speed of the steering-wheel angle. Steering-torque sensors determine the force required for this steering action. Hella is currently developing a combination of both these sensors for start of production in 2007.

Highlights

- Combination of a steering-torque and steering-angle sensor
- Adaptable to individual installation conditions
- Robust, temperature-resistant sensor behavior
- "Single-turn" and "multi-turn" versions are possible



Mechanical data	
Dimensions	typ. Ø 80 mm x 30 mm (without connector) at shaft diameter Ø 23 or Ø 28 mm
Installation location	integrated in the steering gear
Operating temperature	-40 °C to +125 °C (optionally 150 °C)
Measuring range	Max. ± 7.5° (Lenkmomentsensor) Max. ± 810° (Lenkwinkelsensor)

Electrical data	
Voltage supply	5 V or VBat
Current consumption	<10 mA per channel
Output signal	PWM or analog, digital interface optional, in the case of redundant systems combination is also possible (steering-torque sensor) 2 x PWM (precision and rough track; signal evaluation via vernier algorithm (steering-angle sensor)
Characteristic curve	programmable (e. g. plateau areas, gradient, index points)
Accuracy	≤0,15° (steering-torque sensor) and ≤1° (steering-angle sensor) over service-life and temperature
Resolution	12 bit in relation to 15° (steering-torque sensor) 12 bit in relation to 90° (steering-angle sensor)
EMC	meets all the usual automotive requirements

Contact

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