

Steering Torque Integrated Position Sensor for Automotive Applications



Features & Functional Description

Methode's Torque Integrated Position Sensor (TIPS) is based on measuring the differential angle over a torsion bar to determine torque. The sensing principle is Capacitive, that uses relative phase shifts to determine angular displacements between the fixed PCB (emitter and receiver) and the rotating PCB's (reflectors).

Product Highlights

- Contact less technology
- High Resolution and Accuracy
- High redundancy and in-built diagnostic features
- Absolute 360° angle measurement
- ± 8 degree torsion bar deflection range
- Torque and Angle info. immediately available upon "wakeup"
- Compact Package
- Single chip sensing solution

Typical Applications

- Electrical Power Assisted Steering
- Electronic Stability Control
- Active Front Steering
- Force feedback Systems

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Performance Specification

Sensor Ratings

Storage Temperature Range	-40 to 150°C
Operation Temperature Range	.....	-40 to 125°C
Internal update rate	.....	<1 ms
Rotational Speed	.....	720 °/s (120 rpm) *
Inner minimum diameter	.....	23 mm
Outer maximum diameter	.....	80 mm
Minimum thickness	.....	30 mm

* Note: higher rotational speeds possible, up to 2000 °/s.

Angle Sensor Sensitivity

Accuracy	.....	±0.1°
Resolution	.....	0.01°
Range	.....	360°

Torque Sensor Sensitivity

Accuracy	.....	±0.2°
Resolution	.....	0.01°
Range	.....	±8°

Torque measurement using a torsion bar of 1Nm/°

Accuracy	.....	±0.2Nm
Resolution	.....	0.01Nm
Range	.....	±8Nm