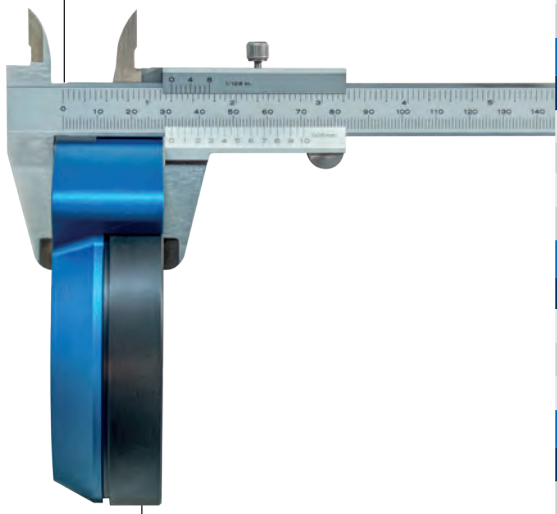
CLS^{X} steering effort sensor

High-Precision Steering Effort Sensor

World's smallest and lightest steering effort sensor

Steering torque range ±100 Nm or ±200 Nm (up to ±250 Nm as option)

Ultra slim sensor body design for seamless integration with minimal extension of steering column



Acceleration measurement in X, Y & Z directions

Detects torque, angle and rotational velocity

Measuring angle range ±1440 °

Optimized for autonomous driving tests

With the innovative CLS^{x} steering effort sensor, the original steering wheel of your vehicle becomes a high-precision instrument that measures steering torque, angle, steering velocity and acceleration in x, y and z directions. The **ULTRA-SLIM SENSOR** can be placed between the steering column and steering wheel in just a few simple steps. High-resolution A/D converters with 24 bits ensure especially good signal quality and noise-free results even at small torques below 3 Nm. This is particularly important when testing advanced driver assistance systems and autonomous driving to determine the overpressure torque.

APPLICATION

Ideal for testing steering systems, driver assistance systems and autonomous driving

precise • ultra-slim • quick setup

CLS^x Details

Steering torque		
Parameter	Value	Remarks
Measuring principle	temperature compensated strain gauge application	
Measurement range	±100 Nm, ±200 Nm, ±250 Nm	others upon request
Accuracy	0.1% FS	Combined (gain error and non-linearity)
Bandwidth	0 to 800 Hz	sampling rate 5 kHz
Steering angle		
Parameter	Value	Remarks
Measuring principle	incremental angle encoder	
Measurement range	±1440 °	
Accuracy	0.045 °	
Bandwidth	0 to 800 Hz	sampling rate 5 kHz
Steering velocity (angular velocity)		
Parameter	Value	Remarks
Measuring principle	calculated from angle	
Measurement range	±2048 °/s	
Bandwidth	0 to 800 Hz	sampling rate 5 kHz
Vibration and acceleration		
Parameter	Value	Remarks
Vibration	in the center of the steering column, measurement range up to 5 g in x, y and z direction	
Rotational acceleration	measurement range ±10000 °/s²	
General data		
Parameter	Value	Remarks
Sensor height	approx. 30 mm	without adapter
Sensor weight	approx. 0.6 kg	without adapter
Overload	>100% of the measurement range	
Mech. breaking torque	>500 Nm	
Adaption	special adaption sets for any car or truck manufacturer available	
Moment of inertia Sensor Steering wheel or column adapter	approx. 3000 g cm² typ. approx. 500 g cm²	
Working temperature	-20°C to +80°C	
Control unit		
Parameter	Value	Remarks
Supply	9 to 36 V DC	
CAN output	freely configurable	
Analog output	freely configurable, max. ±10 V	
Auto zero	Via remote control or push-button for torque and angle on the control unit	