E-Axle Sensors

Making Sense of e-mobility

GEARBOX MOTION & POSITION SENSORS

Non-contact position and speed sensors afford optimal control of gear engagement and shifting mechanisms, leading to smoother operation and enhanced efficiency.

Wear-free rotary and linear position monitoring using Hall-effect and Inductive technology.

■ Through-shaft, end-of shaft, ARC and touchless versions for transmission and powertrain.

- High accuracy and precision
- Low current consumption

■ Stable performance in harsh environmental conditions

Contactless measurement of rotating gears in transmission, camshaft, crankshaft, motor and brake systems.

- Fast and near zero speed sensing capable
- Compact and rugged for automotive applications
- Resistant to humidity and high vibrations
- ESD protection
- Custom cable or connector interface





HIGH SPEED E-MOTOR

Inductive rotor position sensors improve e-motors in EV powertrains by providing **precise**, real-time control of the rotor's position.

Inductive sensors utilize the physical principles of induction in a wire loop and **eddy currents** to detect the position of a solid metallic target rotating above a set of coils. This approach allows for a reduction in parts and greater design flexibility. Such precise detection enables optimal control of the motor's torque and speed, enhancing efficiency and performance. Piher's sensors are robust and resistant to harsh environmental conditions, increasing the reliability and longevity of the electric motor system.

Lightweight, sustainable magnet-free alternative to conventional resolvers with accurate feed-back of angular position, direction, and speed for electric motor control. Up to 600.000

rpm speed

- Stray-field immune
- Lightweight
- ASIL-D ready
- Through-shaft,
- end-of-shaft and ARC/off-axis configurations



Precise current feedback allows for optimal control of motor torgue and speed, improving efficiency and performance. Additionally, current sensors help detect overcurrent conditions and faults, enabling protective measures that prevent damage to the inverter and motor, thereby increasing the system's reliability and longevity.





sensing

INVERTER

Based on two different technologies: open-loop Hall-Effect and coreless TMR sensors. Both technologies provide accurate, non-intrusive measurement of currents with galvanic separation between power and control.

Measured values from ±30 A to ±4.000 A Busbar or wire mounting ■ Total accuracy over temp error < 1% FS ■ Linear error < 0.1% FS Simple or redundant analog ratiometric output



Amphenol Sensors