

Magnetic Position Sensors

The Components for Optimal Values
in Any Position

Product Overview Magnetic Position Sensor

We work together with our customers to develop pioneering sensor systems for all vehicle types and drive technologies on the market. These systems are used to control and regulate the engine, chassis, transmission, ride by wire systems, safety systems, emissions, comfort, and driving assistance systems.

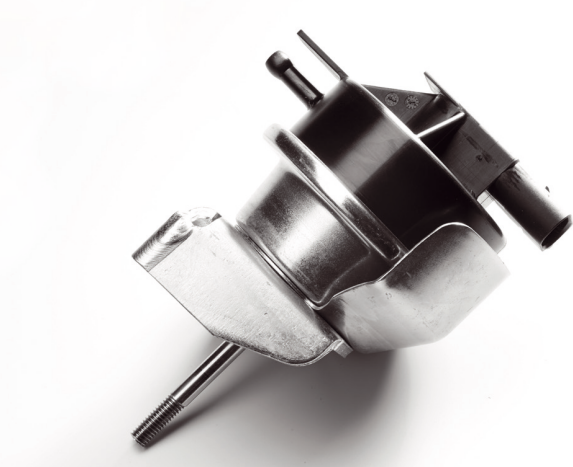
Our linear position, rotary, speed and end position sensors work in accordance with the Hall principle and are validated for a temperature range from –40°C to +160°C. The sensor systems comprise sensor technology, sensor housings, connection lines, connectors, and magnetic assemblies, and also meet all vibration, tightness, and media resistance requirements. The miniaturization of individual components and intelligent housing design help to reduce fuel and energy consumption.

Based on customer-specific requirements, we develop and produce sensor systems that

- operate contactlessly and therefore contain no wear parts;
- register the measured variable in absolute terms and require no teaching-in;
- offer differential measurement value formation, enabling short- and long-term drifts in the system to be compensated;
- can be calibrated in the installation, thanks to which installation tolerances can be extensively eliminated;
- have diagnosable outputs;
- already have integrated EMC and ESD protection, and require no additional filters.



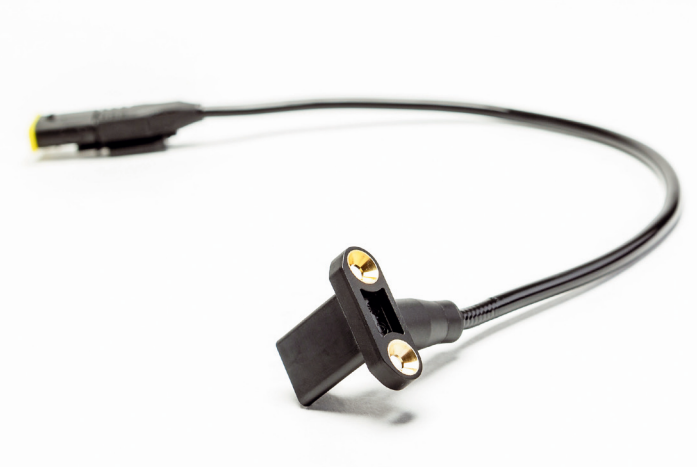
Angular position sensor,
HIRSCHMANN Automotive E-Throttle for ride wire



Linear position sensor, pneumatic pressure cell

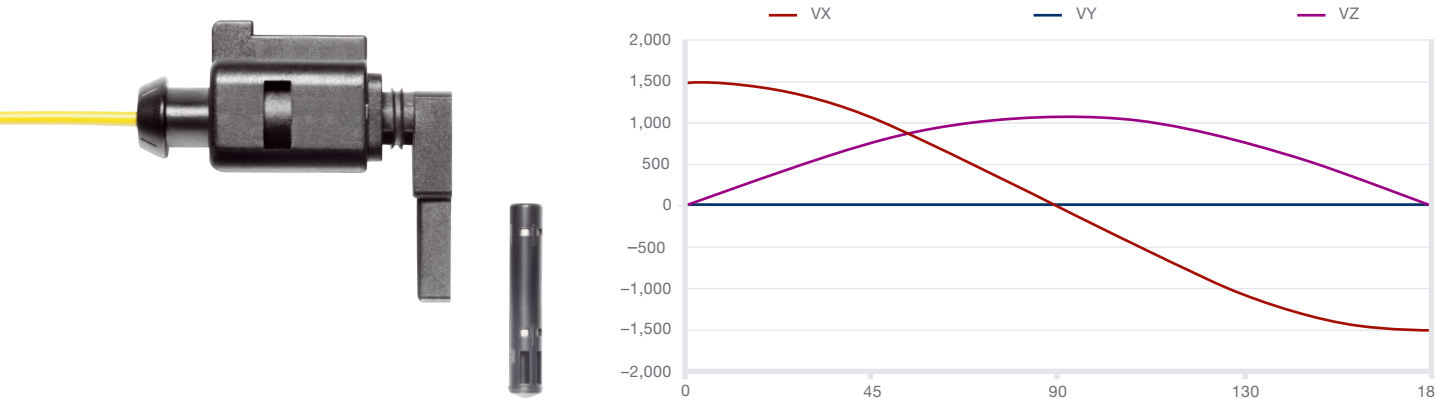


Speed sensor, transmission



Linear position sensor, controlled water pump

Functional Principle



Technical Specifications

Speed sensor without direction of rotation recognition					
Parameter	Designation	Min. value	Typ. value	Max. value	Unit
Supply voltage	VDD	4.5	12	20	V
Output current	IDD	5.7	7/14	16.8	mA
Number of magnetic pulses for initialization	nstart	–	–	4	Magn. edges
Initialization time	tstart	–	120	300	µs
Signal frequency	f	1	–	10,000	Hz
Duty cycle	Duty	40	50	60	%
ESD compatibility	ESD	–	–	±12	kV
Operating temperature	Tamb	–40	25	+160	°C
Tightness			IP67	IP6K9K	
Airgap	airgap	0.2	–	5	mm

Speed sensor with direction of rotation recognition					
Parameter	Designation	Min. value	Typ. value	Max. value	Unit
Supply voltage	VDD	4.5	12	20	V
Output current	IDD	5.7	7/14	16.8	mA
Number of magnetic pulses for initialization	nstart	–	–	4	Magn. edges
Initialization time	tstart	–	300	345	µs
Signal frequency	f	0	–	12,000	Hz
Left direction of rotation signal pulse	tDR-L	50	60	70	µs
Right direction of rotation signal pulse	tDR-R	102	120	138	µs
ESD compatibility	ESD	–	–	±12	kV
Operating temperature	Tamb	–40	25	+160	°C
Tightness			IP67	IP6K9K	
Airgap	airgap	0.2	–	5	mm

Rotary and linear position sensor					
Parameter	Designation	Min. value	Typ. value	Max. value	Unit
Possible linear travel		0	–	80	mm
Possible angle of rotation		0	–	360	°
Linearity error	lin error	±0.5	–	±2	%/VDD
Airgap	airgap	0.2	–	10	mm
Supply voltage	VDD	4.5	5	5.5	V
Supply current	IDD	–	–	10	mA
Initialization time	tstart	–	–	5	ms
Refresh rate	tout	–	–	300	µs
ESD compatibility	ESD	–	–	±15	kV
Operating temperature	amb	–40	25	+160	°C
Tightness			IP67	IP6K9K	