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Speed Sensors

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A wide range of non-contact, multi-channel Speed and direction Sensors, designed for safety critical systems to operate in harsh environments.

Our range of Speed Sensors use Hall Effect & GMR technology to achieve accurate speed and direction sensing. The maximum air gap is determined by the type of Sensor and the Target/Gear Wheel tooth profile.

Speed Sensors supplied with up to 4-galvanically isolated outputs, allowing for customer application flexibility in the number of channels required.

The 4 Channel Speed Sensor can be used to replace existing single and dual channel Speed Sensors, as the physical footprint is of the same form of sensors used in typical applications. This means fewer Speed Sensors per train, having a novel design that improves product cost, life expectancy and reliability.

Various output channel drive circuits are available such as: open collector, supply tracking, push-pull and current output. The Speed Sensors are suitable for generating phase-shifted square wave signals proportional to the rotational speed. Pulse generation can be guaranteed down to zero speed corresponding to a frequency of 0Hz.

Features & Benefits

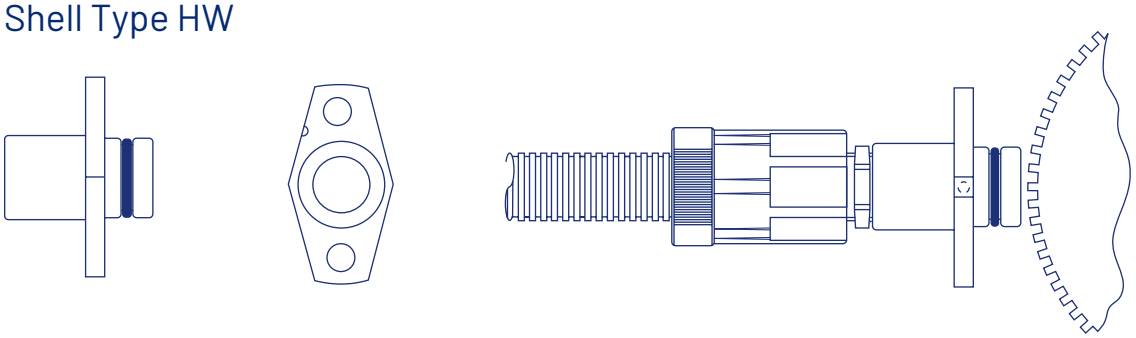
- Designed to be installed in the harsh rail environment.
- Various signal output types are available.
- Single, Dual or multi-channel outputs up to four channels.
- Capable of measuring from 0Hz to 20Hz.
- Reverse supply voltage polarity protected.
- Stainless steel housing in various styles protecting against corrosion.
- Various terminal connections or connectors.
- High reliability.

All of our Speed Sensors are designed and manufactured as bespoke products to meet customer requirements.

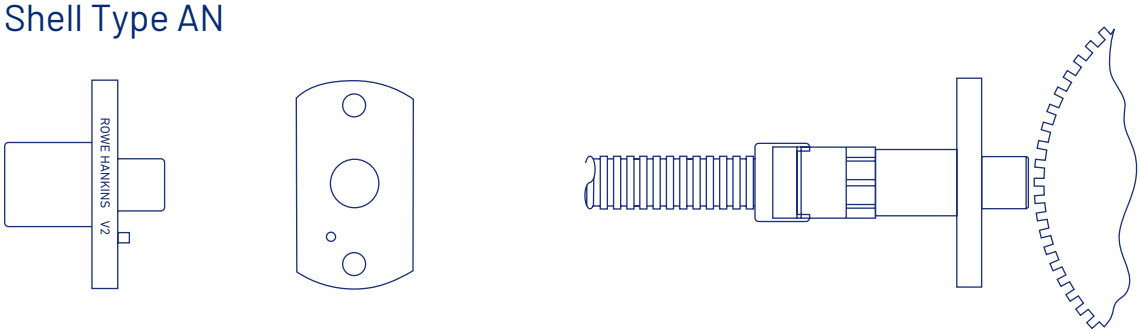
Rowe Hankins selection of standard sensor shell housing styles can be manufactured as shown below. Bespoke standard sensor shells can be designed also.

- Typical standard shell type examples: HW, AN and ST;

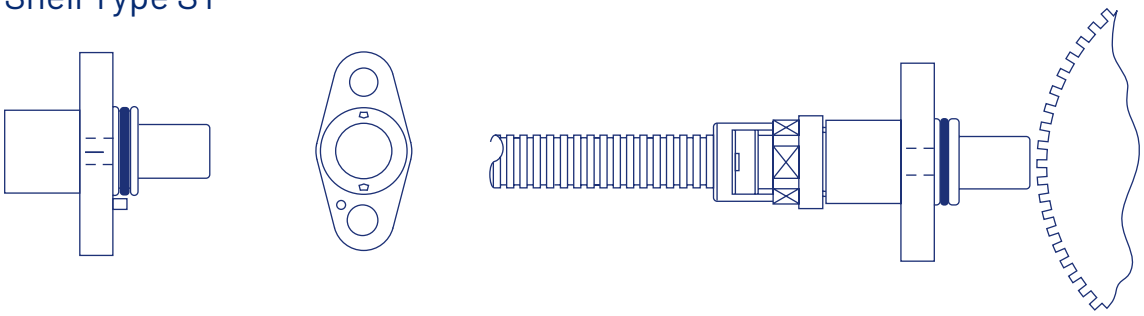
Shell Type HW



Shell Type AN



Shell Type ST



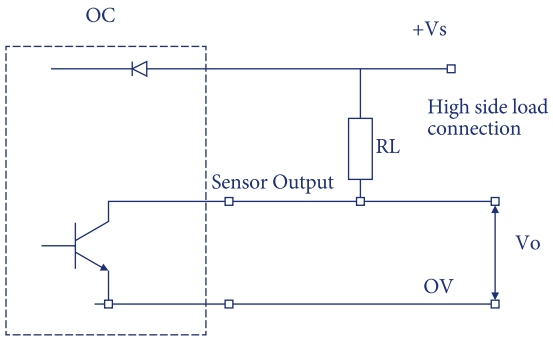
Variations of Speed Sensors.

Industry standard / recognised Sensor electrical configurations are available in four different types;

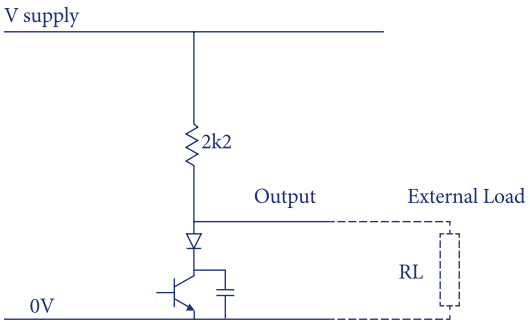
open collector, supply tracking, push pull and current output.

- Industry leading cable manufacturers are used, with bespoke customer specifications also available.
- Connector types are typically MIL-C 5015 bayonet or thread locking. AB, Amphenol, Harting, Souriau, or others upon request.
- Cable protection as required - using PMA conduit as a standard or other types to meet the customers specification.

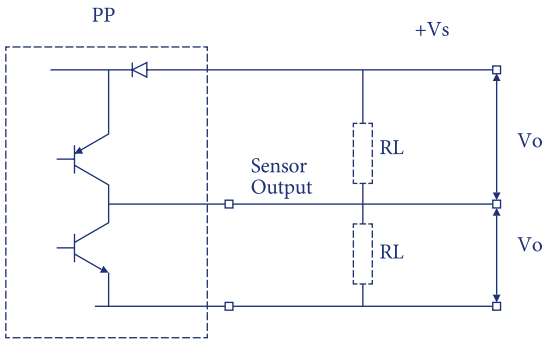
Open Collector



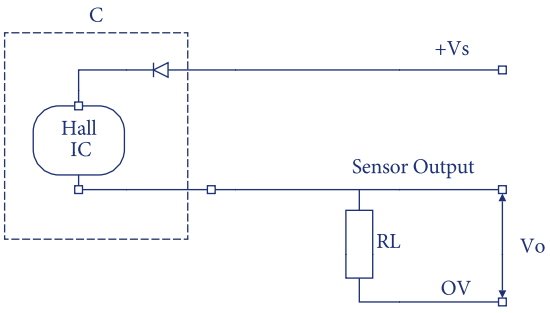
Supply Tracking



Push-Pull



Current Output



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Mechanical

Air Gap:	Typically 1.0 ± 0.5m (target dependent)
Ambient temperature range:	-40°C to 120°C
Thermal shock:	+/- 35°C over 30 seconds
Relative humidity:	0-98% condensing
Protection class (IEC60529):	IP67
Impervious to:	Oil mist, salt spray, conductive dust
Shock and vibration:	EN 61373 category 3
Sensor housing material:	Stainless steel, grade SAE 30303

Electrical

Sensor Output Type:	Open Collector	Supply Tracking	Push-Pull	2-wire
Power Supply (Vs):	10V-24V DC	10V-24V DC	10V-30V DC	10V-24V DC
Current consumption:	< 12mA for single channel, < 36mA for 4 channels (without load)			
Insulation resistance and test:	Insulation resistance > 100MOhm Flash test @ 600Vrms, 50Hz			
Maximum output source current:	n/a	14mA @Vs=30V	20mA	16mA per channel
Maximum output sink current:	20mA	20mA	20mA	n/a
Number of signal outputs:	1 to 4			
Output waveform:	Square wave			
Signal output low voltage:	Vs <1.0V @ 20mA	Vs <1.0V @ 20mA	Vs <1.8V @ 20mA	n/a
Signal output high voltage:	Supply and load dependant	(Vs/2k2+RL) * RL	>Vs - 2V@ 20mA	n/a
Signal output low current:	n/a	n/a	n/a	4-8.4mA
Signal output high current:	n/a	n/a	n/a	16-16mA
Signal output frequency:	0 to 20kHz	0-8kHz		
Phase displacement (2 signal pairs):	90° +/- 45° (target & alignment dependent)			
Duty Cycle:	30%-70% (target & alignment dependent)			
Electromagnetic compatibility:	EN 50121-3-2			
Cable screen termination at sensor end:	According to customer requirements			
Cable (screened):	2 to 8 core, Low smoke, Zero Halogen			
Conduit for cable protection (if required):	Low smoke, Zero Halogen			
Connector (if required):	Typically, MIL-C5015 Bayonet			