

MSC PROFILE

www.magsensors.com



Business Summary

Magnetic Sensors Corporation is a small business certified company that has been designing and manufacturing Hall Effect and Variable Reluctance technologies, since 1983. We provide a wide range of solutions for applications requiring measurement of speed, direction, and proximity for industrial, marine, military, aerospace, rail and MSC continues to assist in finding solutions to the ever changing technology. We are proud of our 30-plus year heritage of product development and evolution.



Capabilities

MSC operation procedures accommodate most run sizes while maintaining consistent quality control.

- Large quantity production runs
- Short runs and special orders
- Prototypes
- On-site engineering and design staff to assist on your application specific requirement

Differentiators

- ✓ Production efficiency guarantees customers a quick turn-around time from concept plans to finish product
- ✓ In-house engineering who are experts in their respective fields combined with highly skilled certified workers
- ✓ Dedicated and service oriented personnel
- ✓ Proven track record on customer service and on-time deliveries
- ✓ ISO 9001: 2008 Certified

Customers



Application: Diesel-engine Locomotive
Sensor type: Cam, crank and traction motor sensor
Customer Since: 2002



Application: Engine-driven generator
Sensor type: Variable Reluctance Speed Sensor
Customer Since: 2000



Application: Engine-driven generator, Turbines and compressors
Sensor type: Variable reluctance speed sensor and ATEX unit
Customer Since: 2007



Application: Mining
Sensor type: Hall Effect Zero Speed Sensor
Customer Since: 2000



Application: Fuel Flow Meter and Underspeed Switches
Sensor type: Variable Reluctance Speed Sensor
Customer Since: 2001



Application: Power Take-Offs on Engine Driven Auxiliary Generators
Sensor type: Variable Reluctance Speed Sensor
Customer Since: 2001



Application: Hot Axel Box Detector (HABD)
Sensor type: Temperature Probe
Customer Since: 2017

Company Snapshot

Cage: 0LVP6 | **Duns:** 104047907 | **ITAR:** M23643
SAM Registered: YES
DGS Registered: 2005212 (Small Business)

NAICS CODE:

- 334419 - Other Electronic Component Manufacturing
- 334513 - Instruments and Related Products Manufacturing for Measuring, Displaying and Controlling Industrial Process Variables
- 334515 - Instruments Manufacturing for Measuring and Testing Electrical Signals and Electricity
- 334519 - Other Measuring and Controlling Device Manufacturing



Facilities and Equipment

- 15,190 sq. feet
- Tooling and Machine shop
- Coil winding operation
- Custom electronics fabrication
- Environmental test chamber
- Engineering test laboratory



MAGNETIC SENSORS CORPORATION
Measuring the Rate of Progress Since 1983

Office Address

1365 N McCan St. Anaheim CA 92806

Phone: 714-630-8380

Fax: 714-630-4368

visit us at: www.magsensors.com



SENSORS FOR RAILWAY INDUSTRY

MAGNETIC SENSORS CORPORATION (MSC) continues to be an innovator on speed solutions for railway applications. MSC's Variable Reluctance (VR) engine cam and crank shaft speed sensors are used extensively in diesel electric locomotives.

Hall Effect sensors usually sense a rotating target wheel or gear. The sensor, with its head at a precise distance from the target wheel, detects the magnets or teeth passing its face. The sensor provides up to four independent channels of output that can be sampled by train control systems and braking controllers. In addition to sensing speed, the sensors are also used to calculate distance traveled by multiplying the number of rotations of the wheel by wheel circumference.



MSC's engine cam and crank sensors have very high reliability. An MTBF of millions of hours has been demonstrated.

Measuring the Rate of Progress Since 1983

VR SPEED SENSORS FOR TURBOCHARGER

NEW PRODUCT COMING SOON!

2018

In Railway Industry, MSC Sensors can be used for:

SPEED SENSOR

- Brake Control
- Engine Cam and Crank Shaft
- Doors Control System
- Propulsion System
- Signalling
- Traction Control
- Turbochargers

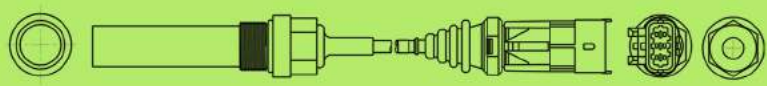
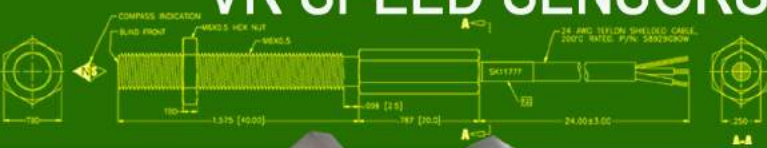
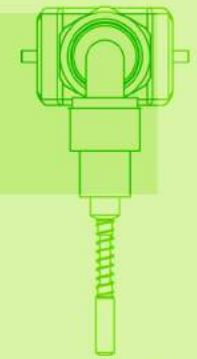
TEMPERATURE SENSOR

- Hot Axle Box Detector (HABD)

TEMPERATURE SENSOR FOR RAIL

PT1000 temperature sensors are used in environments with a need for high accuracy over a wide temperature range. This temperature sensor uses a 2 wire, Class B, PT1000 element with a measuring range of -50°C to +400°C and has an operating temperature of -25°C to +85°C. The temperature sensing element is housed in a stainless steel enclosure and is 100% encapsulated in a high-temperature, thermally conductive epoxy to ensure highly reliable performance in the severe environment encountered in train bogies (i.e., trucks).

The probes have an ingress protection rating of IP69K (pressurized steam). The sensor has a 90° elbow coupled to the cable so that the cable can exit the temperature probe without being subjected to excessive bending stresses. The cable is then protected throughout its length by a flexible conduit. In addition to the positive and negative conductors, a third conductor (ground) is included in the cable so that the temperature probe ground potential can be determined at the site of the signal conditioner through a 6 pin Harting connector.



401040-10
T4 Variable Reluctance Cam Speed Sensor with a Bosch Connector

401040-10
T4 Variable Reluctance Cam Speed Sensor with a Bosch Connector



TRACTION MOTOR SPEED SENSORS

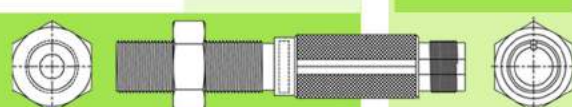
Traction Motor speed sensors are used extensively in rail vehicles for the critical speed control and braking systems. Locomotives depend on a reliable and precise rotary speed signal. Traction motor is a type of electric motor that measure speed or changes in speed, particularly on traction motor locomotives. Although drives without sensors are also used, most locomotives with traction motor need a rotary speed sensor for their regular system. The speed sensors are mounted to traction motor which feedback speed to the traction motor and the drive train Engine Control Module.

Traction motors are operated in rigid environments with high levels of pollution, smog, fumes, and humidity. They also experience speed and temperature changes with shifts in load and vibrations. Sensors used in traction motors therefore, have to be resilient, durable and dependable

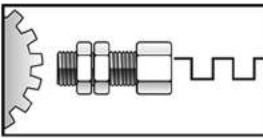
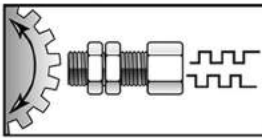
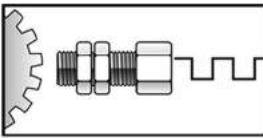
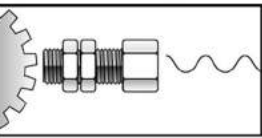
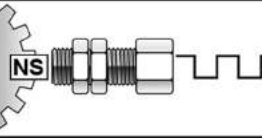
MSC Traction Motor Sensot P/N 427010-50
Traction Motor Sensor for locomotives is available in single channel, stainless steel. Dual or quadrature outputs could also be made by request.



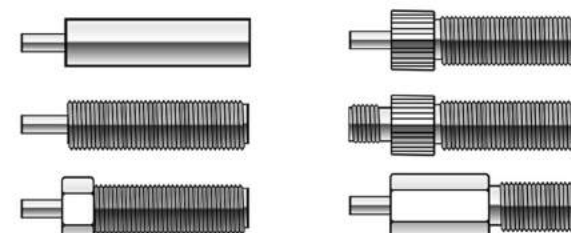
A Quadrature Hall-Effect Traction Motor Speed Sensor has been developed and is undergoing testing for qualification.



SENSORS FOR RAILWAY APPLICATION

| ACTIVE SPEED SENSOR | SPEED & DIRECTION SENSOR | DIGITAL VARIABLE RELUCTANCE | PASSIVE SPEED SENSOR | PROXIMITY SWITCH |
|---|--|---|---|--|
| <p>Hall Effect Geartooth Sensors Measures target's speed from zero to 20,000 pulses per second. Output frequency is proportional to target speed.</p>  <ul style="list-style-type: none"> • True zero speed sensing • Digital output • No moving parts or contacts • Supply voltage from 4.5 - 24Vdc • Operating temp ranges from -40°C to +125°C • Wide size selection • Wide variety of styles • Rugged design • Configurable for almost any environment <p>Sizes Available Tubular - .250" dia. to .500" UNF Thread - 1/4-28 to 3/4-16 Metric Thread - M12x1.25 to M22x1.5</p> | <p>True Quadrature Hall Effect Speed & Direction Sensors Two 90° out-of-phase outputs measure speed and the direction of travel of gear teeth or other ferrous targets.</p>  <ul style="list-style-type: none"> • Direction of travel sensing • True zero speed sensing • Digital output • Supply voltage from 4.5 Vdc-24Vdc • Operating temp ranges from -40°C to +125°C • No moving parts or contacts • Easy orientation <p>Sizes Available Tubular - .500", .625", .750" UNF Thread - 1/2-20 to 3/4-16 Metric - M12x1.25 to M22x1.5</p> | <p>Geartooth Sensors Internal circuitry converts analog output to digital pulses. 30 inches per second (IPS) to 1500 IPS, repetition rate (frequency) to 20,000 Hz.</p>  <ul style="list-style-type: none"> • Near zero speed sensing • Digital output • Reliable VR technology • Supply voltage from 4.5 - 24 Vdc • Operating temp ranges from -40°C to +125°C <p>Sizes Available Tubular - .250" to .750" UNF Thread - 1/4-28 to 3/4-16 Metric Thread - M12x1.25 to M22x1.5</p> | <p>Analog Variable Reluctance Geartooth Sensors Passive Sensors generate a sine wave output with no external power source. Voltage is determined by target speed and air gap.</p>  <ul style="list-style-type: none"> • No external power supply required • High reliability. Long life • Simple 2-wire installation • No moving parts or contacts • Operating Temp ranges from -40°C to +220°C • Wide variety of styles & sizes • Pole piece from .040" to .125" • Spade, conical, round or blind pole piece available. <p>Sizes Available: Tubular - .150" dia. to .500" UNF Thread - 1/4-28 to 3/4-16 Metric Thread - M12x1.25 to M22x1.5</p> | <p>Zero Speed, Non-contact HE Proximity Switch Measures rotary or linear motion. Registers the transition of target magnet past the face of the sensor. Frequency to 100,000 Hz.</p>  <ul style="list-style-type: none"> • Digital output • Supply voltage from 4.5 - 24 Vdc • Operating temp ranges from -40°C to +125°C • Normally open mode standard • Designed for easy orientation <p>Sizes Available Tubular - .500" to .750" UNF Thread - 1/2-20 to 3/4-16 Metric - M12x1.25 to M22x1.5</p> |

STANDARD CONFIGURATIONS



Most MSC sensors are available in all industry standard configurations.

- Tubular Case
- All Threaded Case
- Thread, Hex Head
- Thread, Knurl Head
- MS Connector
- Threaded, Hex Body

Also: Flange-type bolt on, machined, cast, and molded housings.

Terminations:
Twisted Wire, Cable, Shielded Cable, Crimped Terminals, Connectors.

