Honeywell

High Resolution

Industrial VRS Magnetic Speed Sensors

DESCRIPTION

High Resolution VRS sensors are designed for use in applications where precise timing pulse is required, and/or fine pitch gears are used. Proper alignment of the sensor is required.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, power output, high temperature and hazardous location applications, as well as low-cost molded versions.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters:, 5/8 in (M16) 3/8 in (M12)
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 17 Vp-p to 170 Vp-p

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

High Resolution

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])
*Contact Honeywell for availability of metric mounting thread versions.

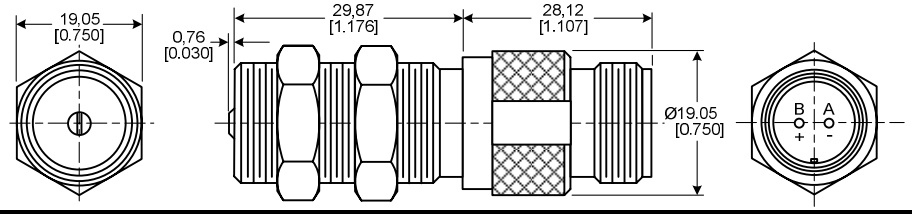
General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	34 Vp-p	Inductance	25 mH max.
Coil resistance	45 Ohm to 85 Ohm	Gear pitch range	36 DP (module 0.07) or coarser
Chisel pole piece width	2,54 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 ºC to 120 ºC [-67 ºF to 250 ºF]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight
3009AN	70 g [2.5 oz]



General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	170 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	36 DP (module 0.07) or coarser
Chisel pole piece width	2,54 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 ºC to 120 ºC [-67 ºF to 250 ºF]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight
3029AN	70 g [2.5 oz]