Honeywell

Honeywell Sensing and Control

3090A35

Actual product appearance may vary.

Hazardous Location VRS Sensor, 15,9 mm [0.625 in] diameter, 60 Vp-p, -73 ºC to 93 ºC [-100 ºF to 200 ºF], 12 DP (module 2.11) or coarser, 40 kHz, 122 mm [4.80 in] approx. length

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: 3/4 in, 5/8 in
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 30 Vp-p to 60 Vp-p

Potential Applications

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM on oil and gas drilling equipment and machinery
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment in grain elevators, sawmills and other potentially explosive environments
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Gear speed measurement

Hazardous Location VRS sensors are designed for use in locations where explosion-proof or intrinsically safe sensors are 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 resolution and high temperature, as well as low-cost molded versions.

Product Specifications	
Diameter	15,9 mm [0.625 in]
Test Condition Specifications	Surface Speed = 25 m/s [1000 in/s], Gear = 8 DP [module 3.17), Air Gap = 0.127 mm [0.005 in], Load Resistance = 100 kOhm
Min. Output Voltage (Peak to Peak)	60 Vp-p
Pole Piece Shape and Size	Round; 4,75 mm [0.187 in] diameter
Typ. Operating Temperature Range	-73 ºC to 93 ºC [-100 ºF to 200 ºF]
Gear Pitch Range	12 DP (module 2.11) or coarser
Typ. Operating Frequency	40 kHz
Max. Inductance	115 mH
Coil Resistance	191 Ohm to 280 Ohm
Min. Surface Speed	0,38 m/s [15 in/s]
Optimum Actuator	8 DP (module 3.17) ferrous metal gear
Mounting Thread	5/8-20 UNF-2A
Vibration	Mil-Std 202F, Method 204D
Material	Stainless steel threaded
Approximate Housing Length	122 mm [4.80 in]
Termination	18 AWG PVC-insulated leads, 3000 mm [120 in], conduit mount
Weight	366 g [10.0 oz]
Series Name	Hazardous Location