

High Temperature Industrial VRS Magnetic Speed Sensors



DESCRIPTION

High Temperature VRS sensors are designed for use in applications where the sensor is exposed to temperatures up to 260 °C [450 °F]. Sealed Front-End versions are available for applications where the sensor is exposed to fluids, lubricants or adverse environmental conditions.

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.

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), 1/4 in (8M)
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 4.7 Vp-p to 125 Vp-p

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 hazardous location applications, as well as low-cost molded OEM versions.

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

Industrial VRS Magnetic Speed Sensors

1/4 INCH SEALED FRONT-END SENSORS (All dimensions for reference only. mm/[in])

(No metric available.)

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	5.2 Vp-p	Inductance	85 mH max.
Coil resistance	20 Ohm to 45 Ohm	Gear pitch range	36 DP (module 0.70) or coarser
Pole piece diameter	1 mm [0.040 in]	Optimum actuator	28 DP (module 0.90) ferrous metal gear
Min. surface speed	0,89 m/s [35 in/s] typ.	Max. operating frequency	70 kHz typ.
Operating temp. range	-73 °C to 230 °C [-100 °F to 450 °F]	Vibration	Mil-Std 202F Method 204D
Mounting Thread	1/4-40 UNS-2A	Termination	28 AWG Teflon- insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
MA3055	28 g [1 oz]	

Catalog Listing	Weight	
MA3055S10	28 g [1 oz]	

Honeywell Sensing and Control

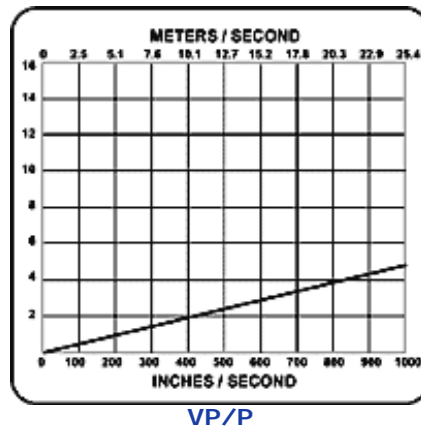


MA3055 Series M8 [1/4 in] Sealed Front-End Hi-Temp VRS Sensor



For speed sensing applications where sensor mounting area is very limited, a high temperature is present and the sensor tip is exposed to liquids, oils or fluids.

- Optimum Actuator: 28 DP (Module 0.9) Ferrous Metal Gear
- Test Condition: A



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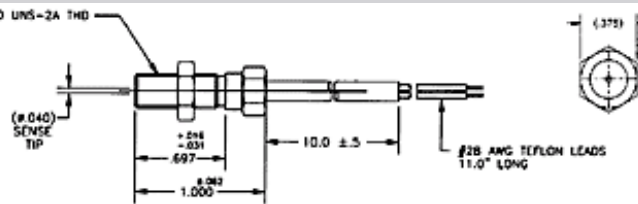
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 - > 3025 Series High Output VRS Sensors

→ Specifications

Parameter	Value
Output Voltage	5.2 V P-P min.
Coil Resistance	20 to 45 Ohms
Pole Piece Diameter.	1 mm [0.04 in]
Minimum Surface Speed	35 IPS (0.890 m/Sec.) Typical
Operating Temperature Range	-73 °C to 230 °C [-100 °F to 450 °F]
Inductance	1.5 mH to 4.5 mH max.
Gear Pitch Range	36 DP (Module 0.7) or Coarser
Maximum Operating Frequency	70 KHz Typical
Vibration	Meets Mil-Std 202F Method 204D

Sensor with 1/4-40 UNS-2A Mounting Thread, Sealed Front-End, 279 mm [11 in] Leads

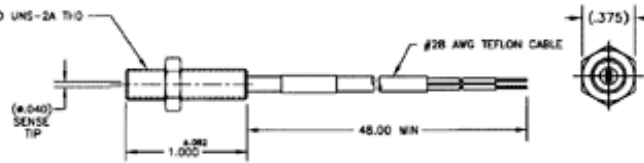


→ Dimensions

Part Number	Thread Length	Weight
MA3055	17,5 mm [0.69 in]	28 g [1 oz]

- > 3040 Series Power Output VRS Sensors
- > MA230/MA240 Series Sealed Front-End VRS Sensors
- > MA243HT Series Sealed Front-End Hi-Temp Sensor
- > MA215HT/MA315HT Series Sealed Front-End Hi-Temp VRS Sensors
- > MA3055 Series Sealed Front-End Hi-Temp VRS Sensor
- > 3042 Series Intrinsically Safe VRS Sensors
- > 3042 Series Control Drawing
- > 3050 Series Miniature VRS Sensors
- > 3080 Series Sub Miniature VRS Sensor
- > 3015HTB Series High Temperature VRS Sensors
- > Download VRS Calculator

Sensor with 1/4-40 UNS-2A Full Length Thread, Sealed Front-End, 1200 mm [48 in] Leads



→ Dimensions

Part Number	Thread Length	Weight
MA3055S10	25,4 mm [1.0 in]	28 g [1 oz]

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