HARCO Innovative Solutions for Demanding Environments™

MAGNETIC SPEED SENSORS



Magnetic Speed Sensors designed by HARCO convert motion into an electrical signal without the need for external power. Housed in a one-piece lightweight stainless steel assembly, HARCO speed sensors provide extremely high accuracy and have no moving parts. Designed and manufactured to the highest quality standards, they are ideally suited to harsh environment operation.

Features

- High Positional Accuracy
- Wide Speed Range
- Harsh Environment Operation
- Extended Temperature Range
- High Shock Resistance
- No Moving Parts/External Power Source
- Easy Installation
- Low-Cost Redundancy/Maintenance

Typical Applications

HARCO speed sensors are used in gas turbine engines and gearbox assemblies in commercial and military aircraft. They are also equally suited for many industrial applications where harsh environments are expected. Typical applications include:

- Engine RPM
- Transmission Speed
- Multiple Engine Synchronization
- Engine Control Feedback
- Crankshaft Position Timing
- Wheel Speed



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Specifications (Typical Aerospace Unit)

Output Voltage:	60 volts P-P minimum @ 1400 IPS & .005 inch gap
Resistance:	150 ohms maximum
Inductance:	85 mH
• Temperature Rating:	-65°F to +350°F
Insulation Resistance:	100 megohms minimum
• Dielectric Strength:	500 vrms @ 60 Hz for 1 minute
Vibration:	Mil-Std-202, Method 214, Cond. I
Moisture Resistance:	Mil-Std-202, Method 106
 Salt Spray: 	Mil-Std-202, Method 101
Weight:	3 oz.

Operation



Dimensions



Represented by:



The permanent magnetic field produced by the magnet is altered by the passage of a ferrous discontinuity such as a gear tooth. This changing field generates an AC voltage in the coil. The AC voltage amplitude is proportional to the rate of change of the gear speed.

Output Voltage vs. Air-Gap



The distance between the pole-piece tip and the gear tooth should be as close as possible. The output voltage amplitude decreases as gap increases in a roughly exponential form.