

# 005-130 Magnetic Pickup Sensor



Designed to Survive®

## DESCRIPTION OF OPERATION

Variable Reluctance Speed Sensors (VRS) are simple, rugged devices that do not require an external voltage source for operation. The permanent magnet in the sensor establishes a fixed magnetic field. The passing of a ferrous *target* or gear across the sensing face of the sensor changes the flux of the magnetic field. This change in flux generates a signal voltage. The output signal of a VRS sensor is an AC voltage that is typically expressed in peak-to-peak voltage (Vp-p). The output of the sensor is similar to the waveform in Figure 1. The frequency of the signal is proportional to the speed. The amplitude of the output signal increases with an increase in exciter speed as shown in Figure 2. The output amplitude is also dependent on the sensing gap. At larger sensing distances, the amplitude is lower

## MOUNTING

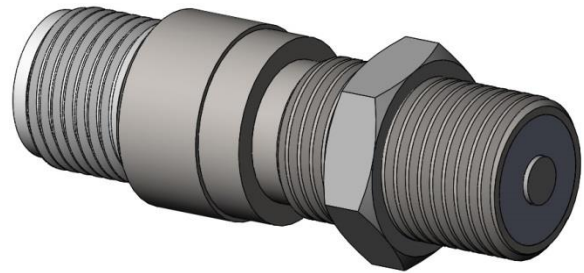
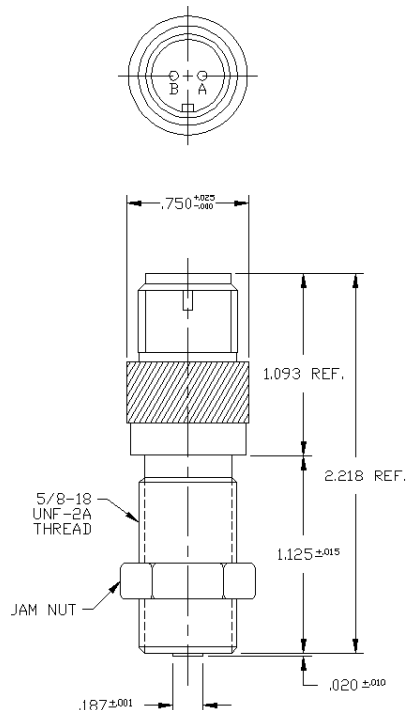
The unit is designed to mount in a 5/8" – 18 UNF threaded hole and a jam nut is provided for securing the sensor.

## AIR GAP

The pick-up should be adjusted for a typical clearance of 0.010" (0.25 mm) between the sensor and gear. This adjustment will provide excellent sensitivity and resolution. Air gap between the sensor and the exciter must be set so that the target will not strike the sensing pole-piece.

## CONNECTIONS

This sensor is fitted with a 2-pin integral connector.



## SPECIFICATIONS:

**Output Voltage:** 70 Vp-p TYP\*.

**Coil Resistance:** 150 Ω TYP.

**Coil Inductance:** 70 mH TYP.

**Leakage Resistance:** 100 MΩ MIN.

**Dielectric:** 500 VAC @ 60 Hz

**Temperature Rating:** -65°F to +300°F

**Polarity:** Pin B is + with respect to Pin A upon approach of ferrous metal.

**Mating Connector:** MS 3106A-10SL-4S

**Housing:** Stainless Steel with epoxy resin potting.

## POTENTIAL APPLICATIONS:

- Engine RPM measurement on: rail vehicles, aircraft, automobiles, boats, buses, and trucks
- Wheel-slip measurement on locomotives and automobiles
- Gear rotational speed (camshafts, crankshafts)
- Flow measurement (turbines, flowmeters)

## FEATURES:

- Low cost
- No maintenance required
- Plug-and-play
- Wide operating temperature range
- Environment ready, mechanically rugged.

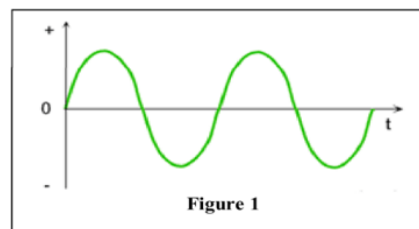


Figure 1

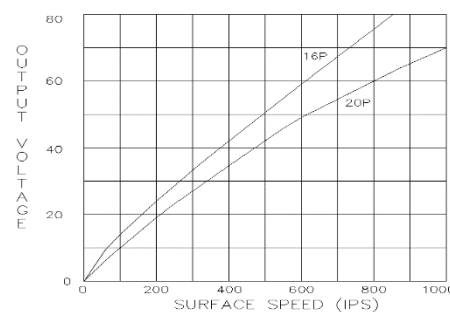


Figure 2

\*Tested with 20 pitch gear, 100 KΩ Load, 1000 IPS, 0.005" gap.