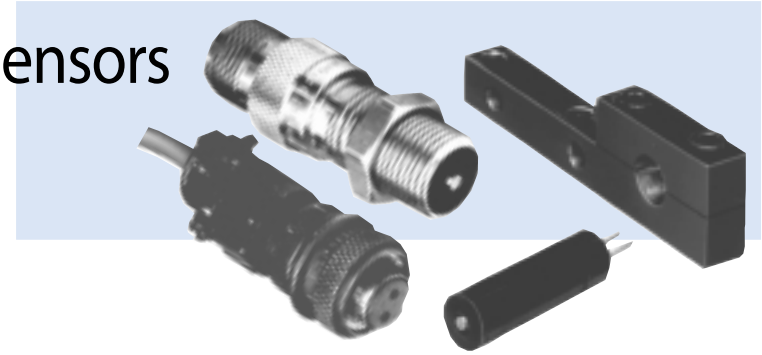
Series 7143 Magnetic Sensors

- *High output gear tooth sensor*
- *Requires no power Supply*
- *For low RPM measurement*



APPLICATION/INDUSTRY

For monitoring the speed of any shaft when mated with a magnetic-input tachometer and positioned in alignment with the teeth of a ferrous material gear.

DESCRIPTION

Typically, 60-tooth, 16-pitch gears provide the optimum characteristics for RPM measurement, but other gear types can serve special application needs. They are well suited for industrial machinery as well as test stand and laboratory installations. Series 7143 is available in a plastic tube model, supplied with mounting bracket, or in threaded stainless-steel model. Both include a 10-foot shielded cable with mating connector.

Series 7143 features an extra strength permanent magnet pole-piece and high inductance coil. Gear teeth supply the motion within the magnetic field, so that the sensor/gear combination acts as an AC generator. Voltage output is directly proportional to velocity and closeness of the air gap.

FEATURES AND BENEFITS

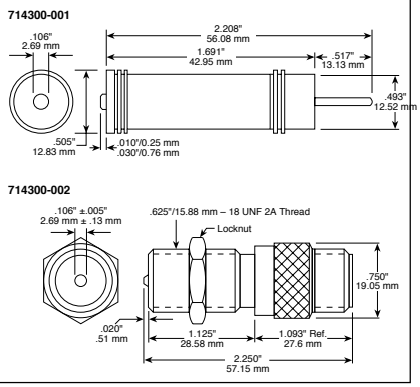
- High output design for superior low velocity performance
- Two-wire, self generating output requires no power connection
- Economy plastic, or heavy-duty noncorrosive stainless steel models
- Supplied with all necessary mounting hardware and cable

SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Output Voltage:25 VDC minimum peak to peak (into 100 kΩ load) with 16-pitch gear, 1000 RPM, 0.01" gap
DC Resistance: 1200Ω maximum
Inductance:400 mH maximum
Temperature Range:-100° to +225°F (-73° to +107°C)
Materials: Model Number 714300-001: Plastic shell, stainless steel pole piece; Model Number 714300-002: Stainless steel shell and pole piece
Mounting:Model Number 714300-001: Aluminum bracket (supplied); Model Number 714300-002: Threaded body with locknuts (supplied)
Connections:10' cable assembly (supplied)

Dimensions:



SELECTING THE PROPER GEAR

It is vital when using the Series 7143 for revolutions per minute applications that a 60-tooth, ferrous gear be properly selected. Optimum results relative to the sensing of low rpm, as well as high speeds will be achieved with gears having a pitch of 16 or less, and a gear-to-sensor gap of 0.01" or less. Sixty-tooth gears with up to 20 pitch and/or gear-to-sensor gaps of up to 0.05", will produce excellent results provided that operation below approximately 600 rpm is not required.

The following figure suggests typical requirements for gear configuration. Ideal dimensions may not be available in stock gears, but the figure serves as a guide for selection of the best stock gear available.

A. Dimension of tooth top, equal to or greater than D.

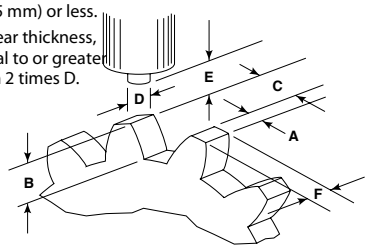
B. Height of tooth, equal to or greater than D.

C. Space between teeth, equal to or greater than D.

D. Diameter of pole piece, typically 0.106" (2.69 mm).

E. Clearance, as close as possible, typically 0.01" (0.25 mm) or less.

F. Gear thickness, equal to or greater than 2 times D.



Recommended Gears

Gear	Dia.	Bore	Pitch	PPR	7143
16002070083	3-7/8"	1/2"	16	60	X
16002070216	5-1/2"	1-1/8"	11	60	X
16002070217	5-1/2"	1-3/8"	11	60	X
16002070218	5-1/2"	1-5/8"	11	60	X
16002600314	5-1/2"	1-7/8"	11	60	X
16002600315	5-1/2"	2"	11	60	X
16002600316	5-1/2"	2-1/8"	11	60	X
16002600317	5-1/2"	2-1/4"	11	60	X
16002600318	5-1/2"	2-3/8"	11	60	X
16002600319	5-1/2"	2-1/2"	11	60	X
16002600320	5-1/2"	2-7/8"	11	60	X

Model No.	Description
714300-001	1/2" diameter x 1-3/4" plastic probe, bracket, cable assembly
714300-002	5/8" diameter x 2-1/4" stainless steel probe, cable assembly

For zero speed sensors, see 51Z, 53Z Pickups

Spec Tech Industrial 203 Vest Ave. Valley Park, MO 63088 Phone: 888 SPECTECH
E-mail: sales@spectechind.com www.spectechind.com