

Digital Speed Sensors

Models 1102, 932, and 933XP

Description

Electro-Sensors' Model 932, 933XP and 1102 Sensors are designed to be used with pulse generators that provide magnetic targets, such as Pulser Wraps, and Pulser Discs. The Model 932 Sensor's exterior is 3/4"-16 threaded aluminum, and it comes with a mounting bracket, jam nuts, and 10' of 3-conductor shielded cable. It can also be ordered with a conduit adapter, allowing it to fit a 3/4" NPT conduit fitting. The 1102 Magneto-resistive Sensor has a non-threaded stainless steel body, and is also supplied with a mounting bracket and 10' of cable. Electro-Sensors' model 1102 is the recommended Magneto-resistive Sensor for use with 199SM Wheels and NEMA C Flange Ring Kits. The Model 933XP Magneto-resistive Sensor is mounted in a cast aluminum enclosure and is UL Listed for use in Class I, Div 1, Groups C, D; Class II, Div 1, Groups E, F, G locations. It also comes with 10' of 3-wire shielded cable and a mounting bracket. The enclosure conduit opening is threaded for 1/2" NPT.

The sensors are all powered by 5-24 Vdc and have NPN open collector outputs. Magneto-resistive Sensors switch low when the sensing surface is in the presence of a magnetic field and high when the sensing surface is not in the presence of a magnetic field (i.e., the null spaces between the magnets) when using Electro-Sensors' Pulse Generators. The gap distance between the sensing surface and the pulse generator depends on the strength of the target magnets. The digital pulse signal produced by the sensors is compatible with all Electro-Sensors' products, most PLC digital I/O cards, and with other products requiring a digital pulse input signal.

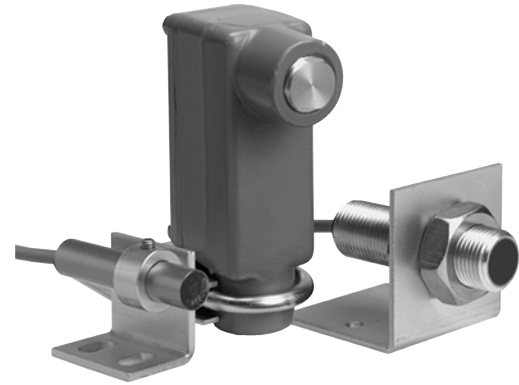
These sensors are also frequently used with single-magnet targets in counting, function start/stop, or orientation alignment of mechanical and electronic indexing equipment applications.

Pulser Disc

The end of the shaft to be monitored must be center drilled to a depth of 1/2 inch with a No. 21 drill and tapped for 10-32 UNF. After applying Loctite® or a similar adhesive on the threads to keep the pulser disc tight, the pulser disc should be attached decal side out with the supplied 10-32 UNF machine screw and lock washer. Discs can be used with any of the 932, 933XP, or 1102 sensors.

Pulser Wrap

Pulser Wraps are custom manufactured to fit the shaft they will be mounted on. When the wrap is shipped, four Allen-head cap screws hold the two halves of the wrap together. These screws must be removed so that the wrap is in two halves. Place the halves around the shaft, reinsert the screws and torque them to 5 foot-pounds. Pulser wraps can be used with any of the 932, 933XP, or 1102 sensors.

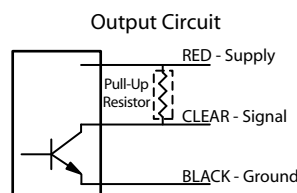


Sensor Installation

The 932, 933 and 1102 Magneto-resistive Sensors gap and angle alters the duty cycle of the generated pulse. Typically a 1/4" gap will achieve a 50/50 duty cycle when used with Electro-Sensors Pulser Discs and Pulser Wraps. When using the Magneto-resistive Sensor in applications in which the duty cycle of the pulse output is critical, watch the sensor output with an oscilloscope and position the sensor with the sensing device perpendicular to the direction of rotation. Turn the monitored shaft and observe the output changes on the oscilloscope while slowly adjusting the sensor until the desired output is achieved.

Electrical Connections

Magneto-resistive Sensors are designed for use with devices that have an internal pull-up resistor. If the device that will receive the signal does not have a pull-up resistor, a resistor must be placed between the sensor supply voltage and the sensor signal output (see Wiring Diagram).



Supply Voltage	Resistor Value	Resistor Wattage
5V - 11V	1K	1/4 Watt
12V - 15V	2.2K	1/4 Watt
16V - 24V	4.7K	1/4 Watt

Important Note: Exercise caution when wiring the sensor, as damage will occur if the SIGNAL and SUPPLY lead wires are accidentally shorted. Carefully double-check all connections before applying power to the unit.

Wiring Chart

Color	Connect To	Description
Red	Supply	Transducer Supply
White or Clear	Signal	Transducer Signal
Black	Circuit Ground	Transducer Ground
Shield	Circuit Ground	Transducer Ground

6111 Blue Circle Drive
 Minnetonka, MN 55343
 Phone: 952.930.0100
 Fax: 952.930.0130
 ISO 9001:2015 Certified



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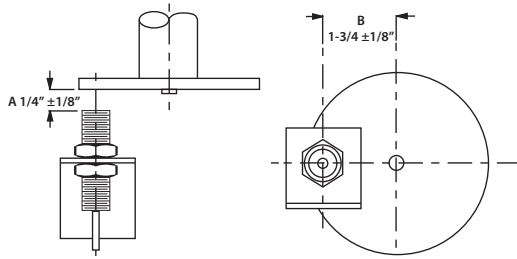


Figure 1: 932 and Pulser Disc

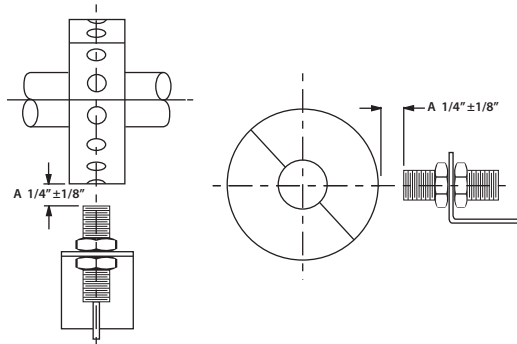


Figure 2: 932 and Pulser Wrap

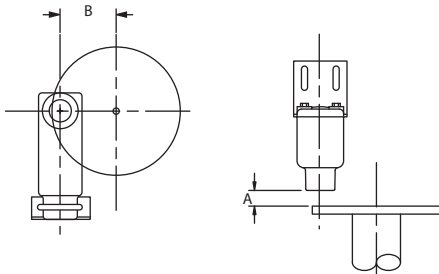


Figure 3: 933XP and Pulser Disc

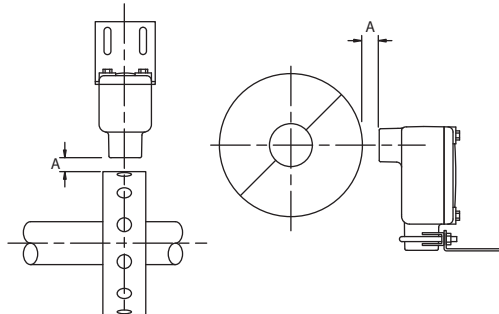


Figure 4: 907 and Pulser Wrap

Cable	3-Conductor, Shielded
Mounting Bracket	Zinc Plated Steel, Included
Body Material	932: Aluminum 933XP: Cast Aluminum 1102: Stainless Steel



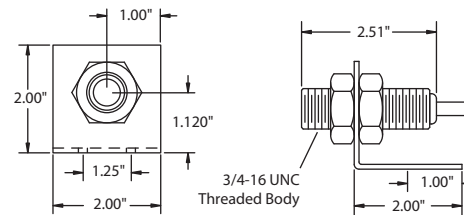
Class I, Div 1, Group C, D
Class II, Div 1, Groups E, F, G
UL File: E249019
Sensor Model: 933XP



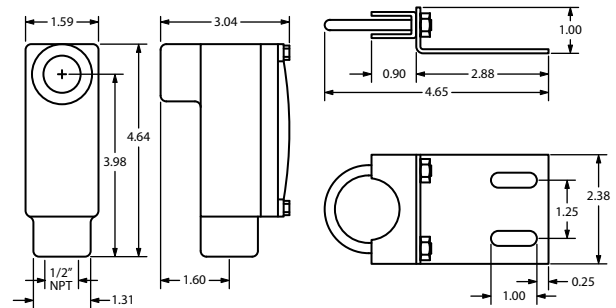
Control Number: 69003
Intrinsically Safe Apparatus and
Associated Apparatus for use in
Class I, II and III Div I
Hazardous Classified Locations UL913 (1997)
CAN/CSA-C22.2 No. 157-92

***Higher temperature versions available, consult factory.**
Part Dimensions

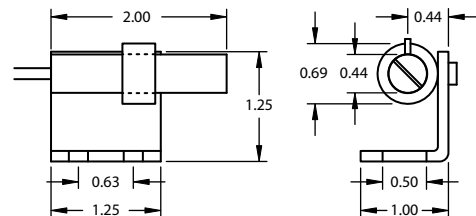
Model 932 Sensor



Model 933XP Sensor and Mounting Bracket



Model 1102 Sensor



Sensor Specifications

Supply	5-24 Vdc @ 10 mA
Output Type	NPN Open Collector
Current sink	20 mA Max
Operating Frequency	0 Hz to 20 kHz
Temp Range	-40° C to +60° C*
Gap Distance	1/4 inch +/- 1/8 inch w/ 1/2" Magnets
Cable Length	10 feet standard (1500 feet max.)



Free Catalog and Application Assistance

1.800.328.6170

Website: www.electro-sensors.com

990-001500 Revision F