

ELECTRO-SENSORS

Superior • Systems • Solutions



SA420 Digital Signal Conditioner

- Easy field-adjustable calibration
- 4-20 mA and 0-10 Vdc outputs
- Accepts wide range of input frequencies 0.01 Hz to 10 KHz
- Interfaces with a wide variety of sensors
- ETL® approved to applicable UL and CSA standards
- DIN rail mount module
- 5-Year Limited warranty on speed switches, sensors & ratemeters*

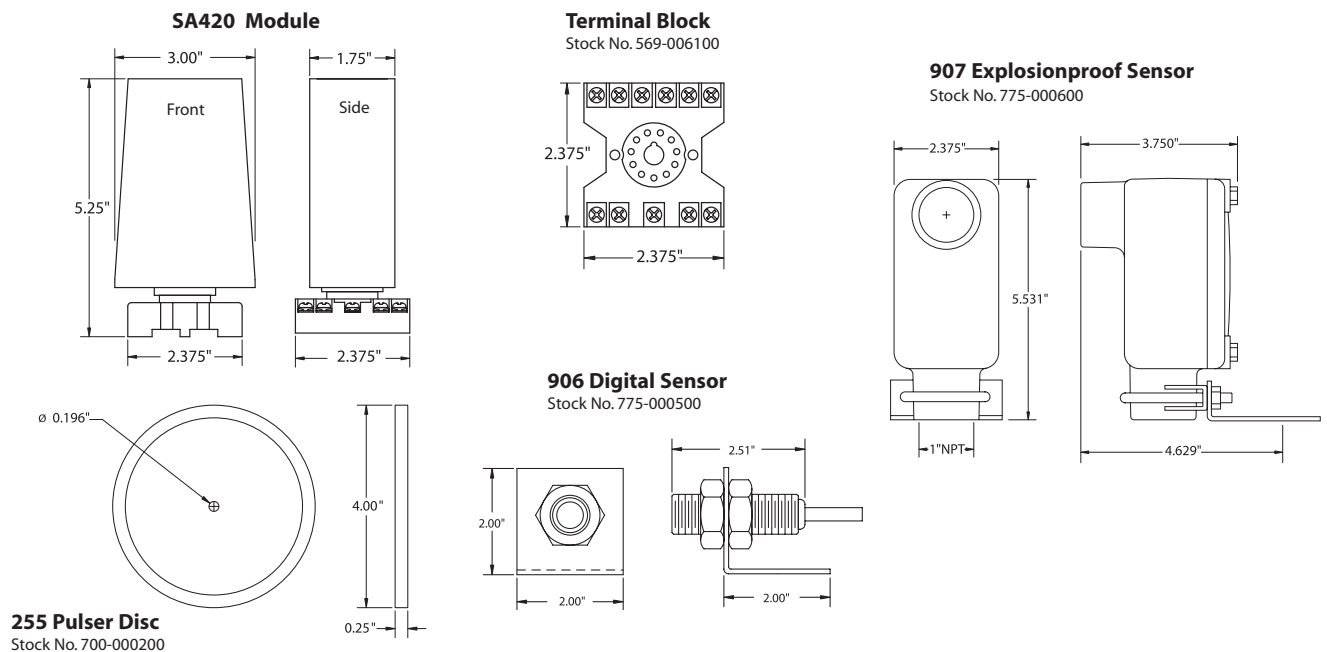
* Contact factory for more information

Product Information

Description

Electro-Sensors' SA420 Digital Signal Conditioner provides an analog signal directly proportional to the speed of a rotating shaft. The 0-10 Vdc and 4-20mA output signals can be sent to a digital display, PLC, chart recorder, loop controller, drive speed controller or other control/monitoring device. The wide voltage range and wave shape flexibility of the SA420's sensor input circuitry enables it to translate input signals from Hall Effect sensors, proximity switches, magnetic sensors, and a wide variety of other pulse generator devices, into analog outputs. The standard SA420 system includes the SA420 DIN rail mount module, a 906 sensing Head and a 255 Pulser Disc. Electro-Sensors' products bring efficiency and safety to your operations by preventing machine damage, product waste and costly downtime.

Dimensional Drawings • SA420 Digital Signal Conditioner



Large-Gap Sensor Installation

The standard sensor is supplied with a mounting bracket and two jam nuts, and is easily adjustable to achieve the proper gap distance. The optional explosionproof sensor is supplied with a slotted mounting bracket, also easily adjustable.

Sensors should be installed allowing the center of the magnets to pass in front of the center of the sensing head during rotation. The gap distance between the sensor and disc or wrap (dimension A in figures 1 & 2) is $3/8" \pm 1/8"$. When using a standard 4" Pulser Disc, the center of the magnetized area of the disc (dimension B in Figure 1) is 1-3/4" from the center hole of the disc.

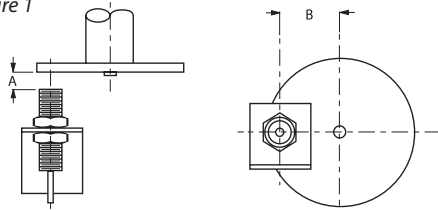
Available Options

- Explosionproof 907 sensing head.
- Split Collar Pulser Wrap for when end of shaft is inaccessible. Wraps available in the following materials:
 - PVC
 - Aluminum
 - Stainless Steel
- Explosionproof/waterproof NEMA rated enclosures.
- Stainless Steel Disc-Guard.
- EZ100 Easy Mount Bracket Assembly for use with 907 Series explosionproof sensor (Figure 3 below).

(Consult factory for further options.)

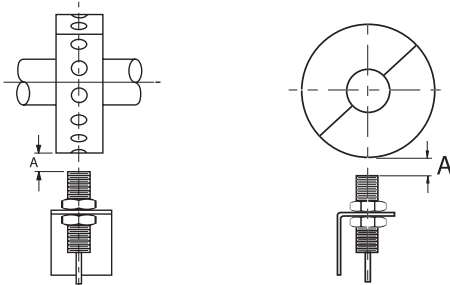
Standard 906 Sensor and Disc*

Figure 1



Standard 906 Sensor and Wrap*

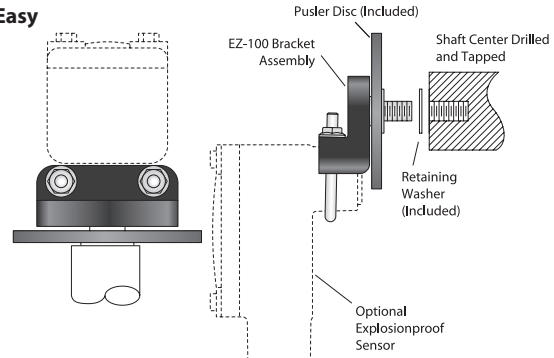
Figure 2



* 907 Explosionproof Sensing Head is also compatible with discs and wraps.

Optional EZ100 Easy Mount Bracket

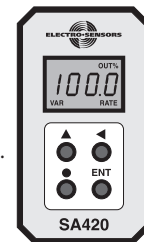
Figure 3



Calibration is Made Easy Using the 4 Buttons on the Front Panel

▲ **Up Arrow Button** changes the value of the position in focus (flashing) while in the calibration mode. In standard mode this button will toggle the display between frequency input (hertz) and output percentage of 4-20 mA or 0-10 Vdc.

● **Decimal Point Button** changes the position of the decimal point while in calibration mode.



◀ **Left Arrow Button** moves the focus to the next position when in the calibration mode.
ENT Enter Button enters or exits the calibration mode.

Specifications • SA420 Digital Signal Conditioner

Input Power

Voltage 115Vac Standard.
 230 Vac, 12 Vdc, 24 Vdc Optional
 Frequency 50-60 Hz
 Requirements 2.5 VA @ 115/230 Vac
 65mA @ 12 Vdc, 40 mA @ 24 Vdc

Input Signal

Type Open collector NPN and PNP
 Logic level 5 V Nominal, 3V Min.
 Magnetic Sensor ± 50 MV
 Amplitude 25 Vp-p Maximum
 Sensor Supply 12 Vdc (Unregulated) at 50 mA Max.
 Frequency 0.01 Hz Min, 10 KHz Max.
 Minimum Input for Full Scale Output 0.5 Hz = 3.8 rpm at 8 PPR, Consult Factory for Lower Full Scale Range

Output Signal

Type 0-10 Vdc 4-20 mA, 500 Ω Load Max.

Accuracy 0-10 Vdc & 4-20 mA 0.1% Linearity
 Step Response Time 10 to 90% at 50 Hz Input & above will be 50ms or 30ms + 1/50 Hz. Below 50Hz Input will be 30ms + 1/Hz Input.

General Specifications

Housing and Cover NEMA 1
 Electrical ETL® Approved to UL 508 Standard
 CSA C22.2 #14-95
 Mounting DIN Rail Mount or Stand-Alone
 906 Sensor Aluminum 3/4" - 16 UNF body with 10 ft of 3-conductor shielded cable.
 907 Explosionproof Sensor.. Cast Aluminum, CSA Approved. Meets UL Class I, Group D; Class II, Groups E, F, G; Class III
 255 Pulser Disc Nylon® 12, 4" dia., 16 magnetic poles
 Gap distance 3/8" \pm 1/8"
 Operating Temperature 0° C to + 60° C*

* Contact factory for higher temperature ranges. Specifications subject to change without notice.

ES-334 Rev E