

ST420 Loop-Powered 4-20mA Shaft Tachometer

- 2-wire loop-powered 4-20ma analog shaft speed sensor
- Accurate quartz crystal based digital processing
- No user calibration — works right out of the box
- Standard and custom measurement ranges available
- Intrinsically safe design
- Works with shaft-mounted pulser targets (disc/wrap)
- Stainless Steel M18x1 housing, NEMA 4X/IP67
- Reverse wiring protected

Product Information

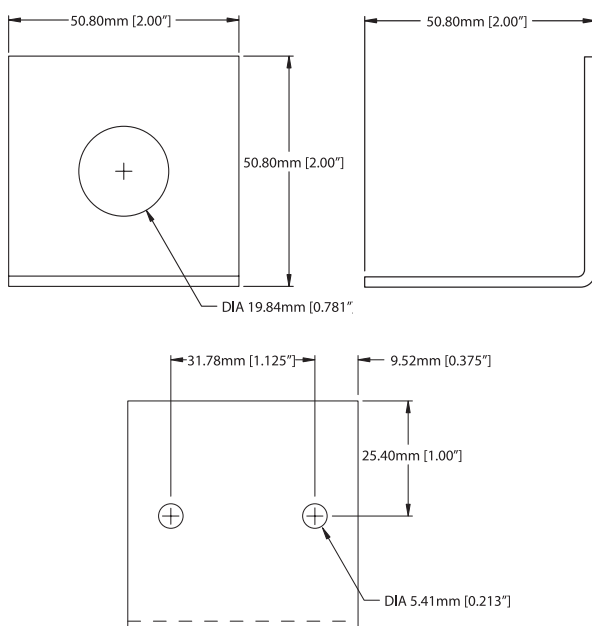
Description

The ST420 is an analog-output shaft speed sensor. It detects magnetic pulses from a rotating shaft-mounted pulser disc or wrap and outputs a smooth, continuous 4-20mA analog signal in direct proportion to the rotating shaft speed. (See the Output Function Graph on back page)

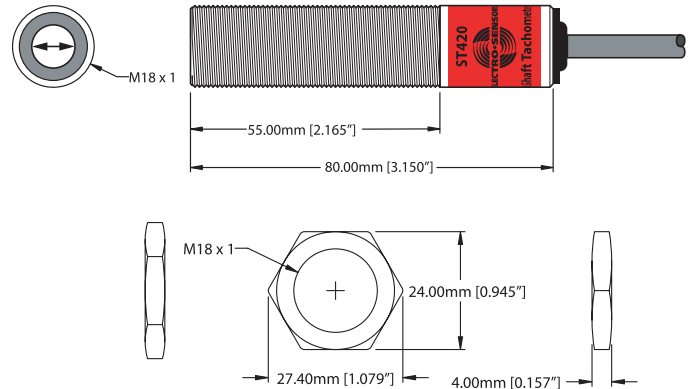
The ST420 combines a magnetic pulse detector, signal processing and 2-wire loop-powered 4-20mA circuitry into a stainless steel M18x1 sensor housing. Also available, ST420-DI with built-in 1/2" NPT conduit port.

The ST420, when used with an approved I.S. barrier, is UL listed as intrinsically safe for use in Class I (Groups C & D) and Class II (Groups E, F & G). The ST420-DI, with its built-in conduit port, is designed to be Class II (Groups E, F & G) dust ignition-proof for use with conduit.

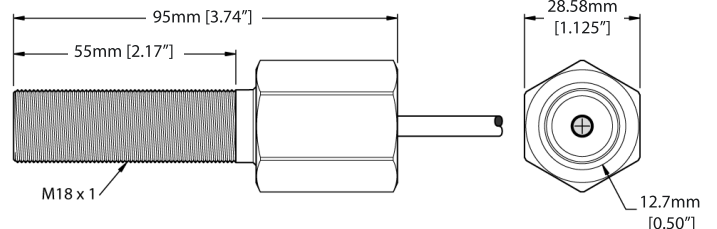
Dimensional Drawings • ST420 • ST420-DI



ST420

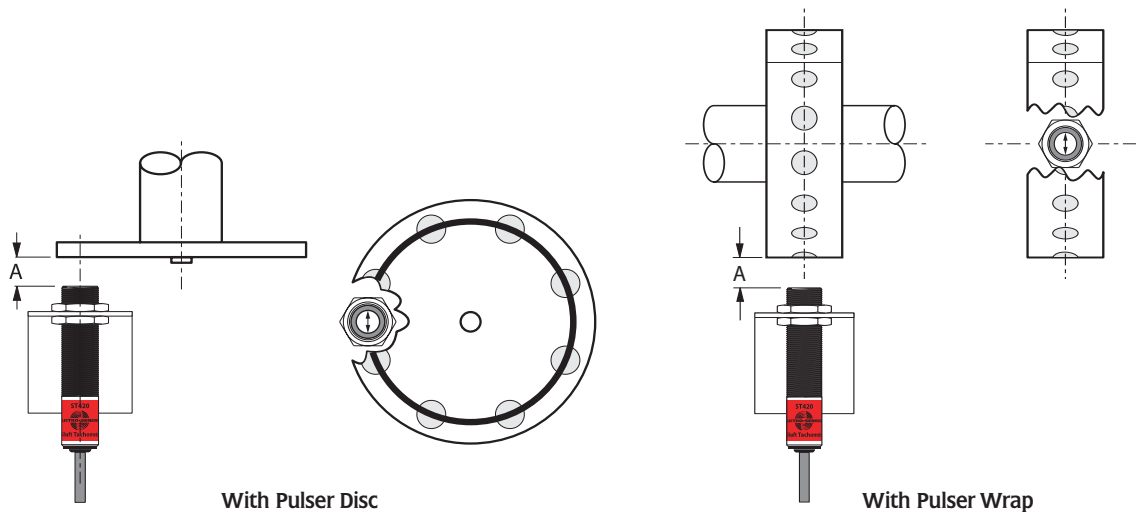


ST420-DI



ST420 Shaft Tachometer

Installation Mount the pulser target (disc or wrap) to the shaft. Mount the ST420 with the arrow label aligned with the center path of the pulser target magnets as shown. Adjust the gap (A) to 1/4" (6.35mm).



Specifications • ST420 Shaft Tachometer

Specifications

Sensor Gap	1/4" ± 1/8"
Vin (min → max)	8-30 Vdc (nominal loop power: 24 Vdc)
Operating Temp	-20°C → +85°C (-4°F → 185°F)
Accuracy	Max error at 25°C ± 0.25% Max error over operating temperature ± 0.50%
Output Response Time	< 9mS

Cable (24AWG)

Color Code	Brown (V+) Black (V-)
Length	10 feet

Dimensions

ST420	80mm (3.15") long x 18mm (0.71") dia.
ST420-DI	95mm (3.74") long x 18mm (0.71") dia. (see dimensional drawing on front page for more info.)

Protection

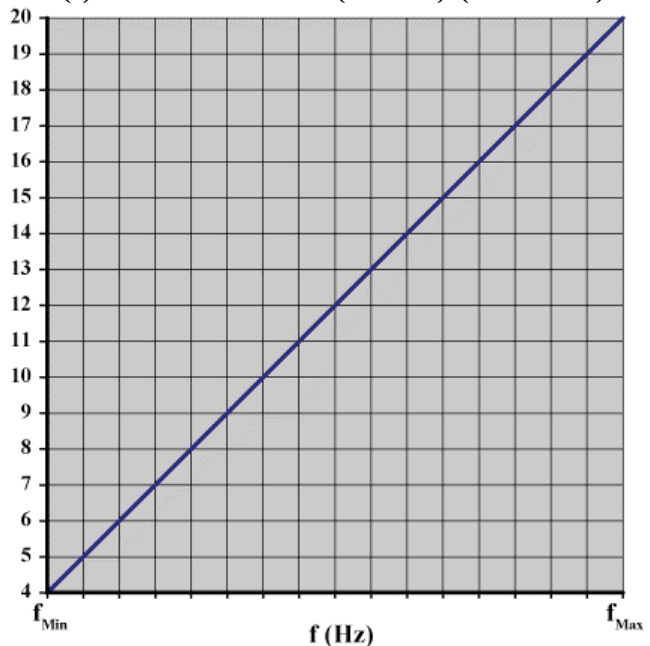
ST420 Intrinsically Safe for use in Class I (Group C, D), Class II (Group E, F, G) Reverse-wiring protected.



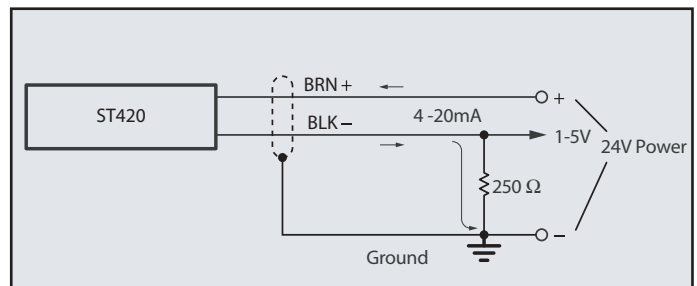
ST420-DI Class II (E, F, G) dust ignition-proof design for use with conduit. Reverse-wiring protected.

Output Function

$$I(f) = 4mA + 16mA * (f - f_{min}) / (f_{max} - f_{min})$$



Non I.S. Wiring Diagram



Specifications subject to change without notice.

ES-735 Rev C