PC420V-EX SERIES

Explosion-proof, velocity loop powered sensor

The Wilcoxon PC420V-EX series vibration transmitter provides a 4-20 mA output signal proportional to the overall velocity level. The ATEX-certified sensors are explosion-proof and are suitable for use in hazardous locations. RMS or peak value output can be selected according to the respective requirements.

The sensors come with a rugged, corrosion-resistant industrial housing, consisting of 303 stainless steel. It features a 3/8-24 x 3/8 depth tapped hole and 13-foot 18 AWG output leads as well as a SF20-2 mounting stud (included).

The PC420V-EX series enables cost-effective and continuous monitoring of the entire machine vibration. Trend data can easily be compared against standard vibration guides, can alert users to changing machine conditions, and can help guide maintenance in prioritizing the need for service without the investment and learning curve that come with other standard vibration monitoring systems.

Applications:
rotating machinery (600-3600 RPM / 10 to 60 Hz range)

Table 1: PC420Vx-yy-EX model selection guide

x (4-20 mA output type)	yy (4-20 mA full scale)
R = velocity, RMS output P = velocity, equivalent peak output	05 = 0.5 ips 10 = 1.0 ips 20 = 2.0 ips 30 = 3.0 ips 50 = 5.0 ips

Key features

- Choice of RMS or peak equivalent output
- Explosion-proof certified
- Provides continuous trending of overall machine vibration
- Manufactured in an approved ISO 9001 facility

Certifications

C SA US

Class I, Div 1, 2 Groups A, B, C, D
Class II, Div 1, 2 Groups E, F, G
Class III
T3C Ta = 85 °C max

Ex

II 2 G
Ex d IIC T3
II 3 G
Ex nA IIT 3
-40°C ≤ Ta ≤ +85°C

For hazardous area locations, sensor must be installed in accordance with installation instructions or local code requirements. Special conditions for safe use:

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– Conduit seal must be installed within 18 inches (450 mm) of the enclosure.
– Use supply wires with spreading suitable for at least 70 °C.

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Note: Due to continuous process improvement, specifications are subject to change without notice.
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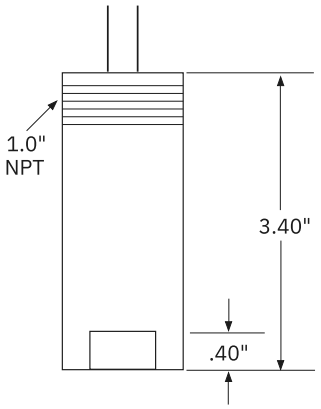
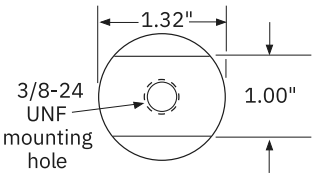
SPECIFICATIONS

Full scale, 20 mA, ±5%		see Table 1 on page 1
Frequency response:	**±10%** **±3 dB**	10 Hz - 1.0 kHz 4.0 Hz - 2.0 kHz
Repeatability		±2%
Transverse sensitivity, max		5%
Power requirements, 2-wire loop power: **Voltage at sensor terminals**		14 - 30 VDC
Loop resistance[1] at 24 VDC, max		700 Ω
Turn on time, 4-20 mA loop		<10 sec
Grounding		case isolated, internally shielded
Temperature range		–40° to +85° C
Vibration limit		250 g peak
Shock limit		2,500 g peak
Sealing		epoxy sealed
Sensing element design		PZT, shear
Weight		380 grams
Case material		303 stainless steel
Mounting		3/8-24 x 3/8 depth tapped hole
Output leads, 18 AWG		13 ft.

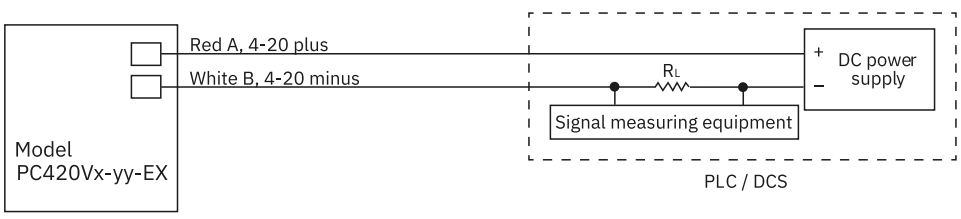
Accessories supplied: SF20-2 mounting stud; calibration data (level 2)
Optional accessories: SF20-1 mounting stud (1/4-28 to 3/8-24)

Connections	
Function	Cable color
loop positive (+)	red
loop negative (–)	white





Typical circuit



Notes: [1] Maximum loop resistance (R_L) can be calculated by:

$$R_L = \frac{V_{DC\ power} - 12\ V}{20\ mA}$$

DC supply voltage	R_L (max resistance)[2]	R_L (minimum wattage capability)[3]
12 VDC	100 Ω	1/8 watt
20 VDC	500 Ω	1/4 watt
24 VDC	700 Ω	1/2 watt
26 VDC	800 Ω	1/2 watt
30 VDC	1,000 Ω	1/2 watt

[2] Lower resistance is allowed, greater than 10 Ω recommended.

[3] Minimum R_L wattage determined by: (0.0004 x R_L).

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