

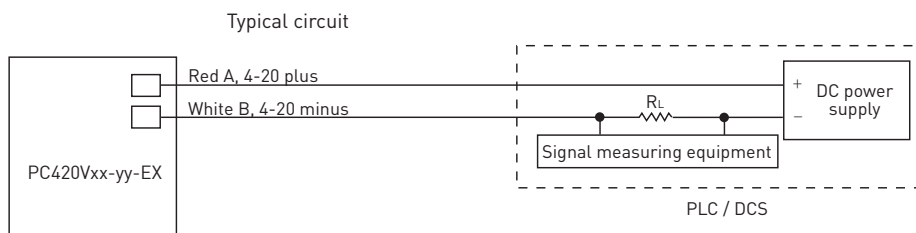
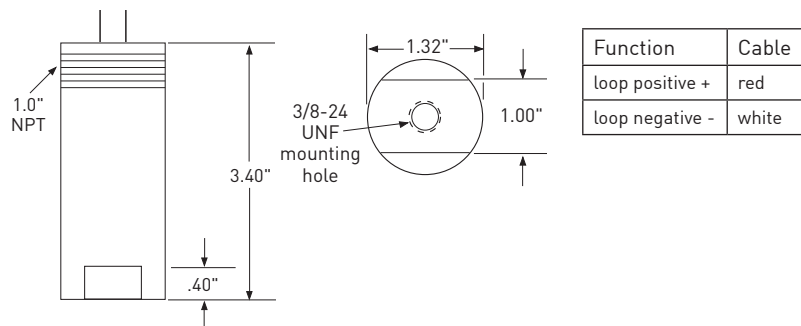
Wilcoxon Research®

Explosion proof, velocity loop powered sensor (LPS) PC420V-EX series



Wilcoxon Research® 4-20 mA vibration sensors incorporate an accelerometer, data acquisition circuitry, and vibration transmitter in a rugged industrial housing. The explosion-proof sensor provides a 4-20 mA output signal proportional to the overall velocity level. The 4-20 mA output is commonly accepted by process control systems including PLC, DCS or SCADA for cost-effective continuous vibration monitoring. Simplified condition based maintenance can be performed on machinery without the investment and learning curve associated with traditional vibration monitoring systems.

The velocity-output sensor is most suitable for rotating machinery which runs in the 600-3600 RPM (10-60 Hz) range due to its increased sensitivity to low frequency vibration. 4-20 mA sensors are specified by their full scale values, where a "-10" sensor is designed with a full scale range of 1.0 ips (inch per second) equivalent to 20 mA. By trending overall velocity, changes can be monitored and when a predetermined increase is reached, an informed decision to shut down machinery can be made.



Key features

- RMS, peak equivalent or true peak detection
- Explosion proof certified
- Corrosion resistant
- Provides continuous trending of overall machine vibration
- Hermetically sealed
- Reverse wiring protection
- Manufactured in an approved ISO 9001 and AS9100 facility

Certifications



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



II 2 G
EEx d IIC T3
II 3 G
EEx nA IIC T3
-40° C ≤ Ta ≤ 85° C

For hazardous are locations, sensor must be installed in accordance with installation instructions or local code requirements.

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

Meggitt Sensing Systems

Our energy product competencies and services

Machinery protection | Condition monitoring | Integrated performance monitoring | Partial discharge monitoring | Sensors for extreme environments
Ignition systems | Flame detection and analysis | Industrial monitoring solutions | Nuclear products

98822 Rev B8 8/14

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smart engineering for
extreme environments

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Specifications

	English	Metric
Full scale, 20 mA, ±5%	see table 1 below	see table 1 below
Frequency response	±10% ± 3 dB 600 CPM - 60 kCPM 240 CPM - 120 kCPM	10 Hz - 1 kHz 4 Hz - 2 kHz
Repeatability	± 2%	± 2%
Transverse sensitivity, max	5%	5%
Power requirements, two wire loop power		
Voltage at sensor terminals	14 - 30 VDC	14 - 30 VDC
Loop resistance¹ at 24 VDC, max	700 Ω	700 Ω
Turn on time, 4-20 mA loop	<10 seconds	<10 seconds
Grounding	case isolated, internally shielded	case isolated, internally shielded
Temperature range	-40 to +185° F	-40 to +85° C
Vibration limit	250 g peak	2,450 m/sec ² peak
Shock limit	2,500 g peak	24,525 m/sec ² peak
Sealing	epoxy sealed	epoxy sealed
Sensing element design	PZT, shear	PZT, shear
Weight	13.4 oz	380 g
Case material	303 stainless steel	303 stainless steel
Mounting	3/8-24 x 3/8 depth tapped hole	3/8-24 x 3/8 depth tapped hole
Output leads, 18 AWG	13 ft	4 m

Accessories supplied: SF20-2 mounting stud (international customers specify mounting requirements), optional SF20-1 mounting stud (1/4-28 to 3/8-24) available, calibration data [level 2]

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

$$R_L \text{ (max resistance)} = \frac{\text{VDC power} - 12 \text{ V}}{20 \text{ mA}}$$

DC supply voltage	R _L (max resistance) ²	R _L (min 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	1.0 Ω	1/2 watt

² Lower resistance is allowed, greater than 10 Ω is recommended

³ Minimum R_L wattage determined by 0.0004 x R_L

Table 1: PC420Vx-yy-EX model selection guide

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

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

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