

# Explosion-proof, velocity loop powered sensor

## PC420V-EX series



Table 1: PC420Vx-yy-EX model selection guide

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



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



II 2 G  
Ex d IIC T3  
II 3 G  
Ex nA II T3  
-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:  
– Conduit seal must be installed within 18 inches (450 mm) of the enclosure.  
– Use supply wires with spreading suitable for at least 70°C.



Note: Due to continuous process improvement, specifications are subject to change without notice.  
This document is cleared for public release.

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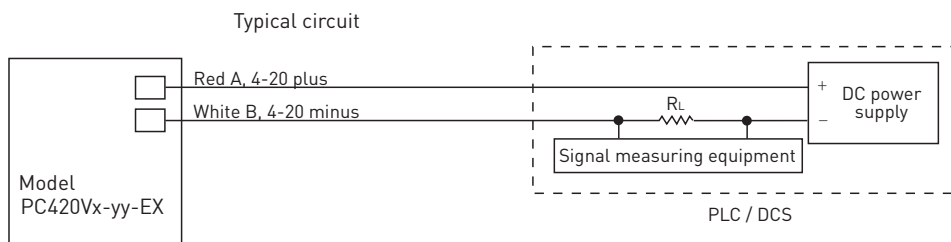
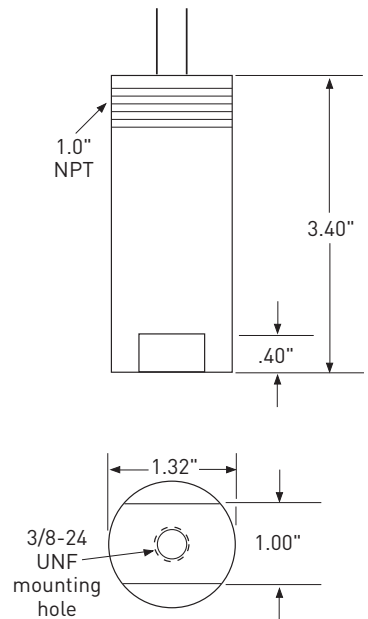
### SPECIFICATIONS

|                                             |                                    |                  |
|---------------------------------------------|------------------------------------|------------------|
| Full scale, 20 mA, ±5%                      | see Table 1 on page 1              |                  |
| Frequency response:                         | ±10%                               | 10 Hz - 1.0 kHz  |
|                                             | ±3 dB                              | 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 <sup>1</sup> 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       |



**Notes:** <sup>1</sup> Maximum loop resistance ( $R_L$ ) can be calculated by:

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

| DC supply voltage | $R_L$ (max resistance) <sup>2</sup> | $R_L$ (minimum wattage capability) <sup>3</sup> |
|-------------------|-------------------------------------|-------------------------------------------------|
| 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                                        |

<sup>2</sup> Lower resistance is allowed, greater than 10 Ω recommended.

<sup>3</sup> Minimum  $R_L$  wattage determined by:  $(0.0004 \times R_L)$ .

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