

# Displacement loop powered sensor

## PC420DPP-40

### SPECIFICATIONS

|   |                                    |
|---|------------------------------------|
| Full scale, 20 mA, ±5%                      | 40 mils (1.0 mm) peak-peak         |
| Frequency response:                         | ±10%<br>±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                 | 12 - 30 VDC                        |
| Loop resistance <sup>1</sup> at 24 VDC, max | 700 Ω                              |
| Turn on time, 4-20 mA loop                  | 30 seconds                         |
| Grounding                                   | case isolated, internally shielded |
| Temperature range                           | -40° to +85°C                      |
| Vibration limit                             | 500 g peak                         |
| Shock limit                                 | 2,500 g peak                       |
| Sealing                                     | hermetic                           |
| Base strain sensitivity, max                | 0.0002 g/μstrain                   |
| Sensing element design                      | PZT ceramic / shear                |
| Weight                                      | 162 grams                          |
| Case material                               | 316L stainless steel               |
| Mounting                                    | 1/4-28 tapped hole                 |
| Output connector                            | 2 pin, MIL-C-5015 style            |
| Mating connector                            | R6 type                            |
| Recommended cabling                         | J9T2A                              |

Accessories supplied: SF6 mounting stud; calibration data (level 2)

Notes: \* Maximum full scale frequency response limited to the lesser of 40 mils peak-peak or 500 g-peak.

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

$$R_L = \frac{V_{DC \text{ power}} - 10 \text{ V}}{20 \text{ mA}}$$

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

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

| 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  |

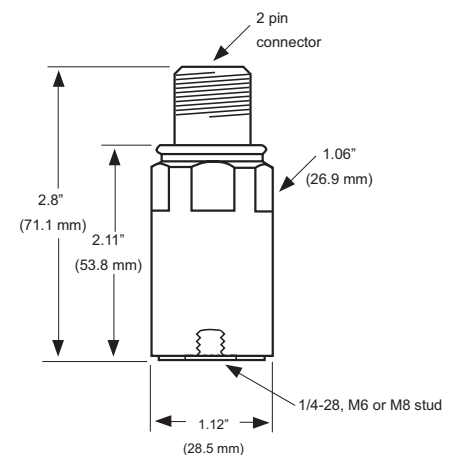
**Interpreting the mA reading:** Insert your reading in mA and the full scale value of the sensor into the following equation to find the equivalent vibration level.

$$\text{Vibration level} = \left( \frac{(\text{reading in mA}) - 4}{16 \text{ mA}} \right) * \text{full scale value}$$

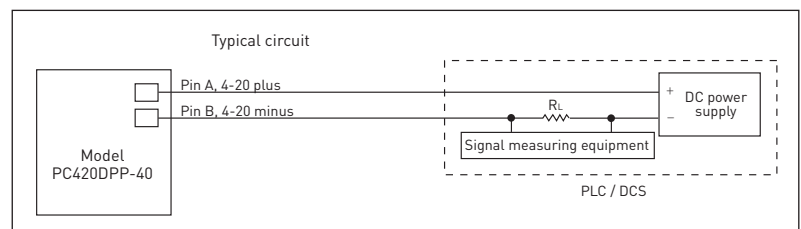


### Key features

- Peak-peak detection derived from true RMS detection
- Minimizes influence of blade pass and gear mesh frequencies
- Manufactured in ISO 9001 facility



| Connections       |               |
|-------------------|---------------|
| Function          | Connector pin |
| loop positive (+) | A             |
| loop negative (-) | B             |
| ground            | shell         |



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