Wilcoxon Research

Model PC420DPP - 40
Seismic displacement loop powered sensor (LPS™)

Output, 4-20 mA

	English	SI
Full scale, 20 mA (±5%)	40 mils peak - peak	1.0 mm peak - peak
±10%	10 Hz - 1.0 kHz*	
±3 dB	4 Hz - 2 kHz*	
Repeatability	±2%	
Transverse sensitivity	5% max	

Electrical

Power requirements (two wire loop power):	
Voltage at PC420 series sensor terminals	10 VDC min, 30 VDC max
Loop resistance[1] at 24 VDC,	700Ω max
Turn on time, 4-20 mA loop	30 seconds
Grounding	case isolated, internally shielded

Environmental

Temperature range	–40 to 85°C
Vibration limit	500 g peak
Shock limit	2,500 g peak
Sealing	hermetic

Physical

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

Connections

Connector pin	Function
Shell	ground
A	loop positive (+)
B	loop negative (–)

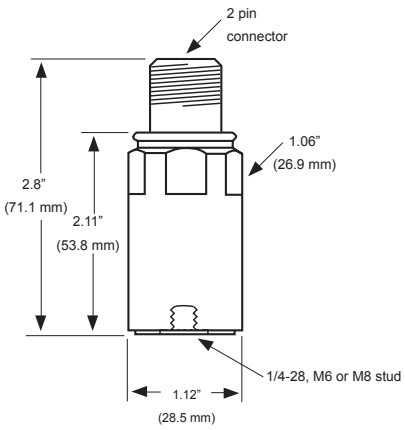
Features
- Peak to peak derived from true RMS detection
- Corrosion resistant
- Hermetic seal
- ESD protection
- Overload protection
- Reverse wiring protection

Benefits
- Peak to peak output provides signal focused on machine balance
- Provides continuous trending of overall machine movement
- Useful for monitoring equipment health or controlling a process
- Minimizes influence of blade pass and gear mesh frequency.

The 4-20 mA output of the PC420DPP Series is proportional to displacement vibration. An output of 4 mA indicates no vibration present. A full-scale reading of 20 mA indicates that the maximum range of displacement is present.

* Maximum full-scale frequency response limited to the lesser of 40 mils (1.0 mm) peak - peak or 500 g-pk

Accessories supplied: SF6 mounting stud (International customers specify M6 or M8 thread); calibration data (level 2)



See reverse

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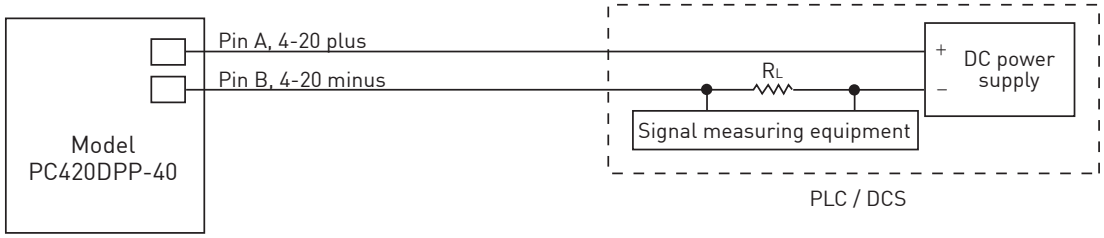
Notes: [1] Maximum loop resistance (R_L) can be calculated by:

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

DC supply voltage	R_L (max resistance)[2]	R_L (minimum wattage capability)[3]
12 VDC	100Ω	1/8 watt
20 VDC	500Ω	1/4 watt
24 VDC	700Ω	1/2 watt
26 VDC	800Ω	1/2 watt
30 VDC	1.0kΩ	1/2 watt

[2] Lower resistance is allowed, greater than 10Ω recommended.
[3] Minimum R_L wattage determined by: (0.0004 x R_L).

Typical circuit



Interpreting the mA reading

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

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

Example: If your meter reading is 10 mA, then substituting 10 mA in the above equation yields; ((10 mA – 4)/ 16 mA) x Full scale of 40 mils (peak to peak) = 15 mils (peak to peak)

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