

# 4-20 mA, integral cable loop powered sensors

## PC423 series

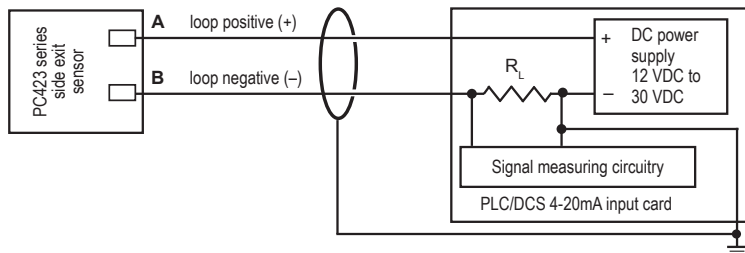
**Table 1: PC423xxx-yy-Dz model selection guide**

xxx (4-20 mA output type)	yy (4-20 mA full scale)	z (dynamic output) <sup>A</sup>
AR = acceleration, RMS AP = acceleration, equiv. peak <sup>B</sup> ATP = acceleration, true peak <sup>C</sup>	05 = 5 g (49 m/sec <sup>2</sup> ) 10 = 10 g (98 m/sec <sup>2</sup> ) 20 = 20 g (196 m/sec <sup>2</sup> )	DA = dynamic acceleration, 100 mV/g (10.2 mV/m/s <sup>2</sup> )
VR = velocity, RMS VP = velocity, equiv. peak <sup>B</sup>	05 = 0.5 ips (12.8 mm/sec) 10 = 1.0 ips (25.4 mm/sec) 20 = 2.0 ips (50.8 mm/sec) 30 = 3.0 ips (76.2 mm/sec) 50 = 5.0 ips (127 mm/sec)	DV = dynamic velocity, 100 mV/ips (3.94 mV/mm/s)

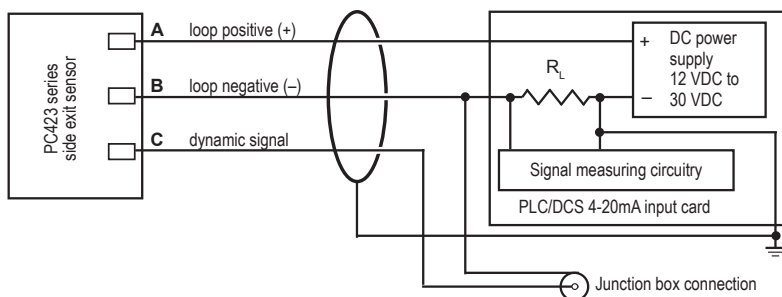
<sup>A</sup> Dynamic output is an option on all models. If dynamic output option is not desired, do not add -DA or -DV to the model number.  
<sup>B</sup> Equivalent peak output is developed based on the true RMS value of vibration. For a pure sine wave, the equivalent peak output is 1.414 times the RMS value.  
<sup>C</sup> True peak output is based on the actual measured peak value using the time waveform and is not based on the RMS calculation.



**PC423xxx-yy wiring**



**PC423xxx-yy-Dz wiring**



### Key features

- Choice of peak equivalent, true RMS or true peak output
- Optional dynamic signal output
- Easily integrated into existing process control systems
- Manufactured in an approved ISO 9001 facility

### Certifications



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

<b>Output, 4-20 mA:</b>		
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%	
<b>Output, dynamic (-Dz models only):</b>		
	<b>PC423-DA</b>	<b>PC423-DV</b>
Sensitivity, ±10%	100 mV/g	100 mV/ips
Full scale	20 g, peak	1.5 ips at 1 kHz
Frequency response, ±3 dB	2.5 Hz - 10 kHz	2.5 Hz - 2.5 kHz
Amplitude nonlinearity, max	1%	
Resonant frequency, mounted, nom.	21 kHz	
Transverse sensitivity, max	5%	
<b>Power requirements, 2-wire loop power:</b>		
Voltage, between black and red wires	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	250 g peak	
Shock limit	2,500 g peak	
Sealing	hermetic	
Sensing element design	PZT ceramic / shear	
Weight	320 grams (excluding cable)	
Case material	316L stainless steel	
Mounting	1/4-28 captive bolt	
Recommended cabling	J95, 16 ft., shielded, twisted pair	

Connections	PC423xx-yy	-Dz models
Function	Wire color	
loop positive (+)	red	red
loop negative (-)	black	black
dynamic signal		white
not used	white	
not used	yellow	yellow
not used	green	green
ground	shield	shield

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

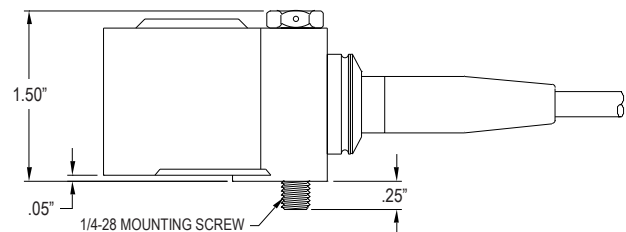
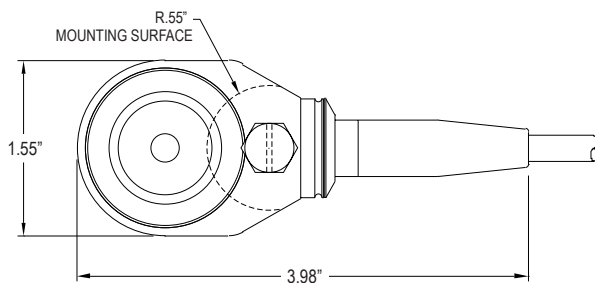
$$R_L = \frac{V_{DC\ power} - 10\ V}{20\ mA}$$

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:  $(0.0004 \times R_L)$ .

**Accessories supplied:** 1/4-28 captive bolt; calibration data (level 2)



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