

Intrinsically safe, integral cable 4-20 mA loop powered sensors

PC423-IS series




Table 1: PC423xx-yy-IS model selection guide


xx (4-20 mA output type)	yy (4-20 mA full scale)
AR = acceleration, RMS AP = acceleration, peak	05 = 5 g (49 m/sec ²) 10 = 10 g (98 m/sec ²) 20 = 20 g (196 m/sec ²)
VR = velocity, RMS VP = velocity, equivalent peak	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)

Key features

- True RMS or peak output
- Certified intrinsically safe for use in hazardous areas
- Easily integrated into existing process control systems
- Manufactured in an approved ISO 9001 facility

Certifications

 Class I Div 1
Groups A, B, C, D
T3C Ta = 85°C max

 II 1 G
Ex ia IIC T4 Ga
-40°C ≤ Ta ≤ +85°C



For hazardous area locations, sensor must be installed in accordance with installation diagram 12779.
The mounting of the apparatus into the installation must be carried out in such a way that the metallic body of the acceleration and velocity transmitter and cable shield are reliably connected to the system earth.
The cable must have an operating temperature compatible with the environment in which the equipment is installed.
The mounting of the apparatus into an installation must be carried out in such a way that the bottom of the acceleration and velocity transmitter must be protected from external physical impact.
The apparatus must be connected to certified intrinsically safe equipment with electrical parameters as specified below:
14 V < U_o < 30V, 20 mA < I_o < 106 mA (linear supply only), P_o < 0.75 W
Furthermore, the following conditions must be satisfied:
C_o < C₁ + C_{cable} and L_o < L₁ + L_{cable}

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% ±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, between black and red wires	12 - 30 VDC	
Loop resistance ¹ at 24 VDC, max	600 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, shear	
Weight	320 grams (excluding cable)	
Case material	316L stainless steel	
Mounting	1/4-28 captive bolt	
Cabling	J95, 16 ft., twisted, shielded pair	

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

Connections	
Function	Wire color
loop positive (+)	red
loop negative (-)	black
N/A	white
N/A	yellow
N/A	green
ground	shell

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

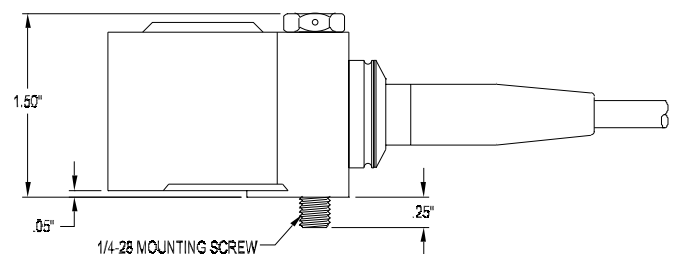
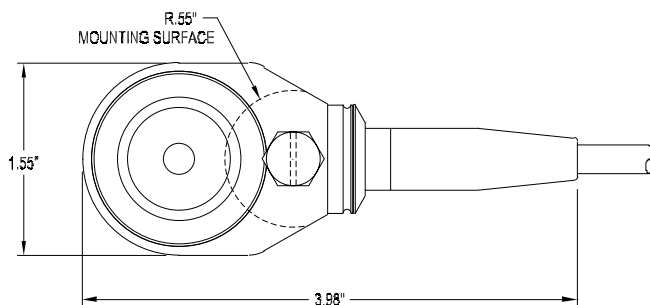
$$R_L = \frac{V_{DC\ power} - 10\ V}{20\ mA}$$

DC supply voltage	R_L (max resistance) ²	R_L (minimum wattage capability) ³
20 VDC	400 Ω	1/4 watt
24 VDC	600 Ω	1/2 watt
26 VDC	700 Ω	1/2 watt

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

³ Minimum R_L wattage determined by: (0.0004 x R_L).

Model ISBS-420-06 barrier strip is recommended for Class I Div 1 locations.



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