INFORMATION RELEVANT TO THE CONTENT OF THIS PDF IS HIGHLIGHTED BELOW.

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Low Frequency

Low Frequency Accelerometers

Low frequency measurement is critical for many industries. The petrochemical, machine tool, and paper industries use low frequency for both condition monitoring and process measurements. Other applications include slow speed agitators, cooling towers, semiconductor lithography, and structural testing.

Low frequency measurements and low levels of vibration are closely related. As shown in Figure 1, acceleration levels decrease at low frequencies. In order to have adequate voltage signals at the acquisition equipment, low frequency sensors have greater output sensitivity (usually 500mV/g) than general-purpose sensors. Additionally, the low-end frequency cut-off is improved (down to 0.1 Hz @ –3dB) in order to read slow speed vibration signals.

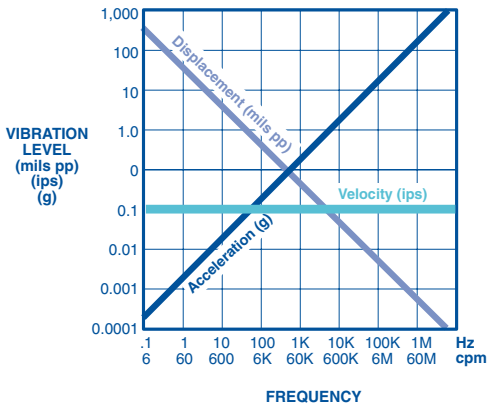


Figure 1: Acceleration & Displacement Levels Relative to a Constant Velocity Level

All Wilcoxon low frequency accelerometers incorporate a low-pass filter within the on-board amplifier electronics. Low frequency measurement usually involve low levels of vibration. The accelerometer's mechanical gain yield very high signal levels within the amplifier. High frequency signals could easily excite the resonance of the accelerometer and cause the amplifier to reach maximum voltage and saturate. This results in a "clipped" signal and distortion. Unless a high sensitivity accelerometer incorporates this protection, it could easily lead to obscured or false data.

Wilcoxon Low Frequency Sensors:

Model	Style	Sensitivity	Low Freq	High Freq	Accel Range
793L	compression	500 mV/g	0.2 Hz	2,300 Hz	10 g peak
797L	shear	500 mV/g	0.2 Hz	3,700 Hz	10 g peak
799LF	shear	500 mV/g	0.1 Hz	2,500 Hz	10 g peak
799M	shear	1,000 mV/g	0.2 Hz	2,500 Hz	5 g peak

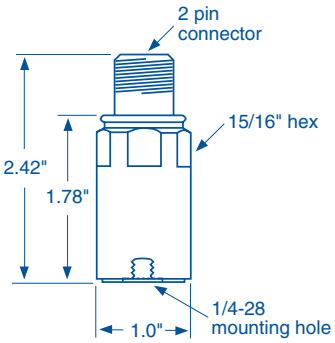
Note: Frequency @ ±3dB.

Model 793L

Premium, Low Frequency Accelerometer

FEATURES:

- High sensitivity
- Ultra low-noise electronics for clear signals at very low vibration levels
- Low pass filtered to attenuate high frequencies
- Hermetic seal
- ESD protection
- Miswiring protection
- Reverse wiring protection



DYNAMIC			
Sensitivity, ±5%, 25°C			500 mV/g
Acceleration Range			10 g peak
Amplitude Nonlinearity			1%
Frequency Response:			
	–5%		0.6 - 700 Hz
	–10%		0.4 - 1,000 Hz
	–3 dB		0.2 - 2,300 Hz
Resonance Frequency			15 kHz
Transverse Sensitivity, max.			5% of axial
Temperature Response			–50°C –10% +120°C +10%
ELECTRICAL			
Power Requirements:	voltage source		18 - 30 VDC
	current regulating diode		2 - 10 mA
Electrical Noise, equiv. g:			
Broadband	2.5 Hz to 25 kHz		8.0 µg
Spectral		2 Hz	2.0 µg/√Hz
		10 Hz	0.4 µg/√Hz
		100 Hz	0.2 µg/√Hz
Output Impedance, max.			100Ω
Bias Output Voltage			10 VDC
Grounding			case isolated, internally shielded
ENVIRONMENTAL			
Temperature Range			–50 to 120°C
Vibration Limit			250 g peak
Shock Limit			5,000 g peak
Electromagnetic Sensitivity, equiv. g.			20 µg/gauss
Sealing			Hermetic
Base Strain Sensitivity			0.0001 g/µstrain
PHYSICAL			
Sensing Element Design			PZT ceramic / compression
Weight			142 grams
Case Material			316L stainless steel
Mounting			¼-28 tapped hole
Output Connector			2 pin, MIL-C-5015 style
Mating Connector			R6 type
Recommended Cabling			J9T2A

CONNECTOR PIN	FUNCTION
SHELL	ground
A	power/ signal
B	common

ACCESSORIES SUPPLIED: SF6 mounting stud (International customers specify mounting requirements); Calibration data (level 3).

OPTIONS: Temperature sensor
Intrinsic safety certification

FM APPROVED

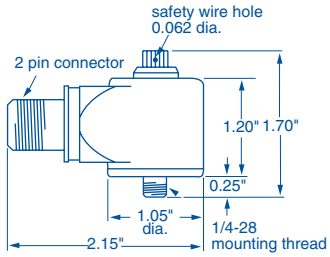
Optional Safety Approvals

Model 797L

Premium, Low Frequency, Center Mount Accelerometer

FEATURES:

- High sensitivity
- Ultra low-noise electronics for clear signals at very low vibration levels
- Low pass filtered to attenuate high frequencies
- Hermetic seal
- ESD protection
- Miswiring protection
- Reverse wiring protection



DYNAMIC			
Sensitivity, ±5%, 25°C			500 mV/g
Acceleration Range			10 g peak
Amplitude Nonlinearity			1%
Frequency Response:			
–5%			0.6 - 850 Hz
–10%			0.4 - 1,500 Hz
–3 dB			0.2 - 3,700 Hz
Resonance Frequency			18 kHz
Transverse Sensitivity, max			7% of axial
Temperature Response			–50°C –8% +120°C +5%
ELECTRICAL			
Power Requirement:	voltage source		18 - 30 VDC
	current regulating diode		2 - 10 mA
Electrical Noise, equiv. g:			
Broadband	2.5 Hz to 25 kHz		12 µg
Spectral	2 Hz		2.0 µg/√Hz
	10 Hz		0.6 µg/√Hz
	100 Hz		0.2 µg/√Hz
Output Impedance, max.			100 Ω
Bias Output Voltage			10 VDC
Grounding			case isolated, internally shielded
ENVIRONMENTAL			
Temperature Range			–50 to 120°C
Vibration Limit			250 g peak
Shock Limit			2,500 g peak
Electromagnetic Sensitivity, equiv. g			5 µg/gauss
Sealing			Hermetic
Base Strain Sensitivity			0.001 g/µstrain
PHYSICAL			
Sensing Element Design			PZT ceramic / shear
Weight			148 grams
Case Material			316L stainless steel
Mounting			1/4-28 captive socket head screw
Mating Connector			R6 type
Recommended Cabling			J9T2A

CONNECTOR PIN	FUNCTION
SHELL	ground
A	power/ signal
B	common

ACCESSORIES SUPPLIED: #12105-01 captive socket head (International customers specify mounting requirements); Calibration data (level 3).

OPTIONS: Intrinsic safety certification

Optional Safety Approvals

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Model 799LF

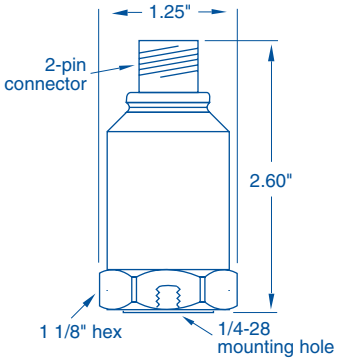
Premium, Low Frequency, Filtered Accelerometer

FEATURES:

- High sensitivity
- Ultra low-noise electronics for clear signals at very low vibration levels
- Opimized for 15V supply
- Low pass filtered to eliminate high frequencies
- Hermetic sealing
- ESD protection
- Miswiring protection
- Reverse wiring protection

DYNAMIC			
Sensitivity, ±5%, 25°C			500 mV/g
Acceleration Range			10 g peak
Amplitude Nonlinearity			1%
Frequency Response:			
–5%			0.3 - 1,200 Hz
–10%			0.2 - 1,600 Hz
–3 dB			0.1 - 2,500 Hz
Resonance Frequency			18 kHz
Transverse Sensitivity, max			5% of axial
Temperature Response			–50°C –7%
			+120°C +5%
ELECTRICAL			
Power Requirement:	voltage source		15 - 30 VDC
	current regulating diode		2 - 10 mA
Electrical Noise, equiv. g:			
Spectral		0.10 Hz	15 µg/√Hz
		1 Hz	3 µg/√Hz
		10 Hz	1 µg/√Hz
		100 Hz	1 µg/√Hz
Output Impedance, max.			400 Ω
Bias Output Voltage			8.0 VDC
Grounding			case isolated, internally shielded
ENVIRONMENTAL			
Temperature Range			–50 to 120°C
Vibration Limit			250 g peak
Shock Limit			5,000 g peak
Electromagnetic Sensitivity, equiv. g			150 µg/gauss
Sealing			Hermetic
Base Strain Sensitivity			0.0005 g/µstrain
PHYSICAL			
Sensing Element Design			PZT ceramic / shear
Weight			205 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 Cable			J9T2A

CONNECTOR PIN	FUNCTION
SHELL	ground
A	power/ signal
B	common



ACCESSORIES SUPPLIED: SF6 mounting stud (International customers specify mounting requirements); Calibration data (level 3).

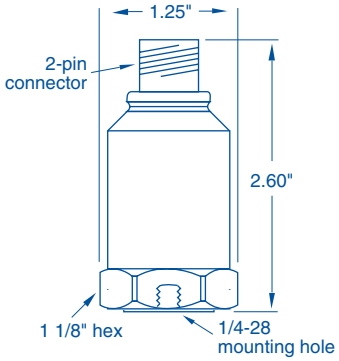
CE

Model 799M

Premium, Low Frequency, High Sensitivity, Filtered Accelerometer

FEATURES:

- High sensitivity
- Ultra low-noise electronics for clear signals at very low vibration levels
- Optimized for 15V supply
- Low pass filtered to eliminate high frequencies
- Hermetic seal
- ESD protection
- Miswiring protection
- Reverse wiring protection



DYNAMIC		
Sensitivity, ±5%, 25°C		1,000 mV/g
Acceleration Range		5 g peak
Amplitude Nonlinearity		1%
Frequency Response:		
–5%		0.6 - 1,200 Hz
–10%		0.4 - 1,600 Hz
–3 dB		0.2 - 2,500 Hz
Resonance Frequency		18 kHz
Transverse Sensitivity, max		5% of axial
Temperature Response		–50°C –7% +80°C +5%
ELECTRICAL		
Power Requirement:	voltage source	15 - 30 VDC
	current regulating diode	2 - 10 mA
Electrical Noise, equiv. g:		
Spectral	0.10 Hz	15 µg/√Hz
	1 Hz	3 µg/√Hz
	10 Hz	1 µg/√Hz
	100 Hz	1 µg/√Hz
Output Impedance, max.		400 Ω
Bias Output Voltage		8.0 VDC
Grounding		case isolated, internally shielded
ENVIRONMENTAL		
Temperature Range		–50 to 80°C
Vibration Limit		250 g peak
Shock Limit		5,000 g peak
Electromagnetic Sensitivity, equiv. g		150 µg/gauss
Sealing		Hermetic
Base Strain Sensitivity		0.0005 g/µstrain
PHYSICAL		
Sensing Element Design		PZT ceramic / shear
Weight		205 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

CONNECTOR PIN	FUNCTION
SHELL	ground
A	power/ signal
B	common

ACCESSORIES SUPPLIED: SF6 mounting stud (International customers specify mounting requirements); Calibration data (level 3).

CE

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