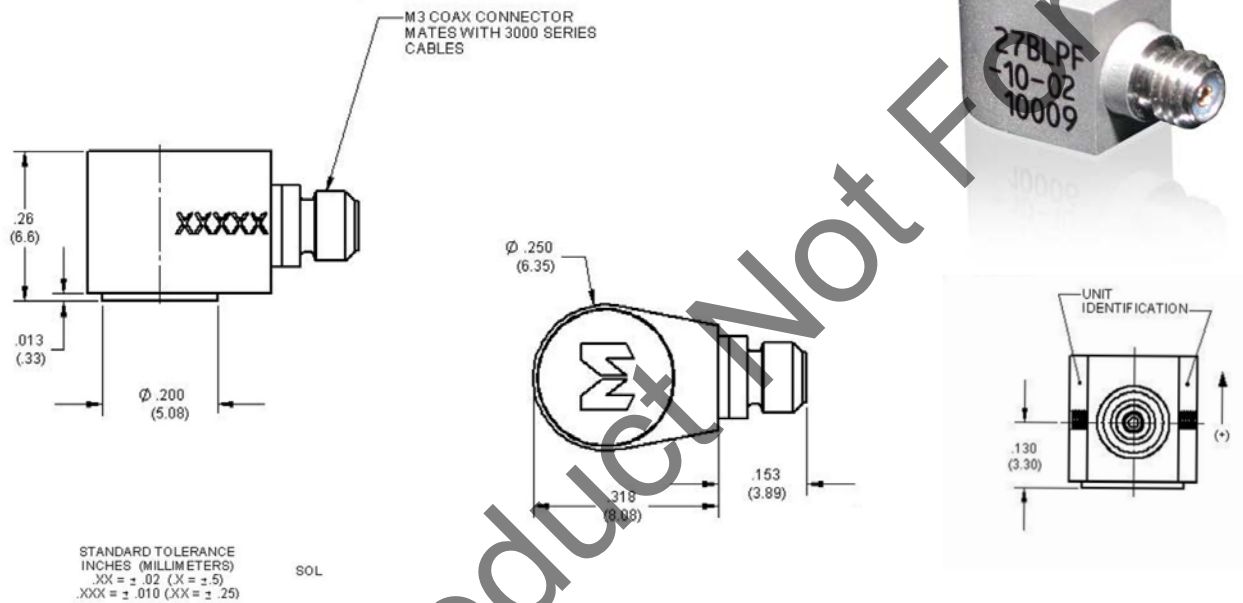


Filtered IEPE accelerometer

Model 27BLPF



Key features

- Integral 2-pole low pass filter
- Rated for continuous use up to +175°C (347°F)
- Lightweight (less than 1.0 gram)
- Adhesive mounted

Description

The Endevco® Model 27BLPF is a miniature, high temperature IEPE (up to +175°C) single axis accelerometer with a 2-pole low pass filter. The sensor is designed for use in test and measurement applications requiring effective attenuation of high-frequency, high-g signals that can obscure the required low-frequency information and cause saturation of the electronics. Additionally, the low-pass filter provides resonance suppression. The high operating temperature of the accelerometer is a supplementary feature needed for many test and measurement applications. The model 27BLPF is packaged in a hermetically sealed body of titanium alloy with a side M3 connector.

The model 27BLPF features a sensitivity of 10 mV/g. The model number's second suffix indicates the low-pass filter corner frequency at level -3dB. Two options are currently available, the model 27BLPF-10-02 featuring a corner frequency of 2 kHz and the 27BLPF-10-10 featuring a corner frequency of 10 kHz.

Filtered IEPE accelerometer | Model 27BLPF

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST) is supplied.

Specifications			
Dynamic characteristics	Units	-10-02	-10-10
Range	g		±500
Voltage sensitivity			
Typical	mV/g		10
Tolerance	%		10
Amplitude response			
±5%	Hz	2 to 1000	2 to 5000
±1 dB	Hz	1 to 1400	1 to 7000
Resonance frequency, minimum	Hz		45 000
Low-pass filter corner frequency (-3 dB)	kHz	2 ±0.2	10 ±1
Low-pass filter roll-off	dB/Octave		10-12.5
Temperature response			See typical curve
Sensitivity deviation		Negative absolute value <20% at -67°F (-55°C) [ref 77°F (25°C)]	
Sensitivity deviation		Positive absolute value <30% at +347°F (+175°C) [ref 77°F (25°C)]	
Transverse sensitivity	%		<5
Amplitude linearity	%		<2
Output characteristics			
Output polarity		Acceleration directed into base produces positive output	
DC output bias voltage [1]	Vdc		+10 to +14 at room temperature +6 to +16 over temperature range See connection diagram
Output connection			See connection diagram
Output impedance			
2 mA to 3 mA	Ω		<300
4 mA to 10 mA	Ω		<100
Full scale output	Vpk		±5
Saturation level at 5Vpk output			
100 Hz	gpk	500	500
1 kHz	gpk	500	500
2 kHz	gpk	≥700	500
5 kHz	gpk	≥1000	500
10 kHz	gpk	≥1000	≥700
40 kHz (resonance frequency)	gpk	≥1000	≥1000
Noise floor			
Broadband (1 Hz to 10 kHz)	mg rms		≤8
Spectral:			
1 Hz	mg / √ Hz		≤2
10 Hz	mg / √ Hz		≤0.7
100 Hz	mg / √ Hz		≤0.3
1 kHz	mg / √ Hz		≤0.2
Overload recovery (2x full scale)	mg μs		<10
Grounding		Signal ground connected to the case	
Power requirement			
Current requirement	mA		+2 to +8
Voltage supply	Vdc		+24 to +30
Supply noise	mV/pk		< 1
Warm-up time (time to reach 90% of final bias)	sec		< 10
Environmental characteristics			
Temperature range		-67°F to +347°F (-55°C to +175°C)	
Humidity		Hermetically sealed	
Sinusoidal vibration limit (without damage)	g pk		±1000
Shock limit (without damage) [2]	g pk		5000
Base strain sensitivity at 250μ strain	eq. g/μstrain		0.13
Thermal transient sensitivity	eq. g pk/°F		0.16
Electromagnetic noise (at 100 Gauss)	eq. g pk/°F		0.0001
Physical characteristics			
Dimensions		See outline drawing	
Weight	oz (gram)		0.028 (0.8)
Case material		Titanium alloy 6Al-4V	
Connector [3]		M3 receptacle	
Mounting [4] [5]		Adhesive	

Filtered IEPE accelerometer | Model 27BLPF

Calibration

Supplied			
Sensitivity	mV/g		
Transverse sensitivity	%		
Frequency response	Hz	20 to 2200	20 to 11 000
Bias	Vdc		

Accessories

Options	Description	27BLPF	27BLPF-R
3053VM1-120	Cable assembly, 10ft	Included	Optional
2943M1	Removal tool	Included	Optional
2987M9	Isolation mount	Included	Optional
32279	Mounting wax	Included	Optional
4416C	Signal conditioner	Optional	Optional

Notes

- +24 Vdc must be available to the accelerometer to ensure full scale operation at temperature extremes.
- Shock pulses of short duration may excite transducer resonance. Shock level above the sinusoidal vibration limit may produce temporary zero shift that will result in erroneous velocity or displacement data after integration.
- Mates with Endevco model 3053VM1 cable.
- Depending on the dynamic and environmental requirements, adhesives such as petro-wax, hot-melt glue, and cyanoacrylate epoxy (super glue) may be used to mount the accelerometer temporarily to the test structure.
- To remove an epoxy mounted accelerometer, first soften the epoxy with an appropriate solvent and then twist the unit off with the supplied removal wrench. Damage to sensors caused by inappropriate removal procedures are not covered by Endevco's warranty.
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Model number definition:

27BLPF - 10 - YY - R

Indicates replacement part (omit if units are not replacements)

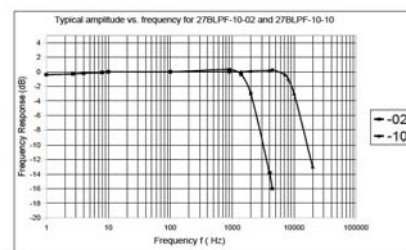
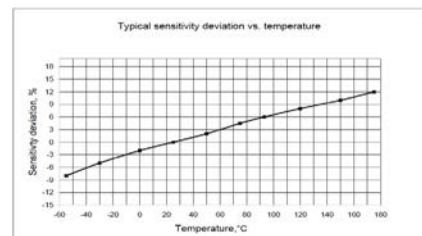
Indicates corner (-3 dB) frequency (in kHz):

-02 = 2 kHz
-10 = 10 kHz

Denotes typical sensitivity in mV/g:

-10 = 10 mV/g

Basic model number



10869 NC Highway 903, Halifax, NC 27839 USA

endevco.com | sales@endevco.com | 866 363 3826