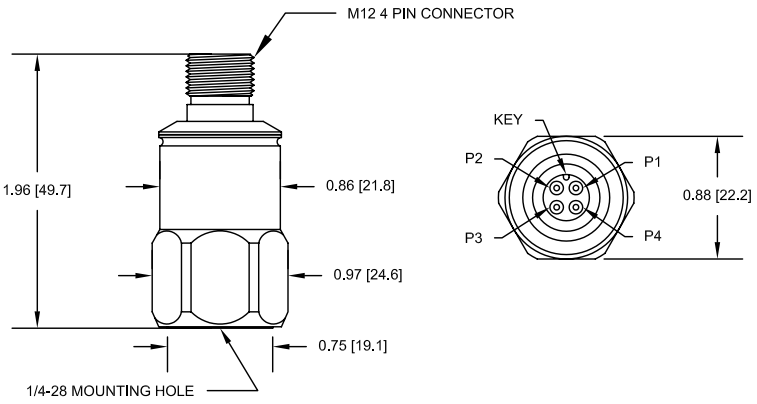
Wilcoxon Research®

Low-power, low-voltage accelerometer
LPA100T

The heart of the LPA100T accelerometer incorporates new technology and innovative designs. Breaking from conventional IEPE power, the LPA100T operates from low-voltage power over the 3 to 5 volt range and consumes less than 300 uWatts (at 3 volts); which compares to traditional IEPE sensors that typically operate at 48 mWatts. In addition to low power consumption, the new patent-pending circuitry minimizes sensor settling time to less than ten milliseconds while still preserving the low frequency response; comparing to traditional IEPE sensors which can require up to 3 seconds for measurement settlement time. To further enhance you measurement, the LPA100T also includes a built-in temperature sensor for monitoring at the mounting location.

In multiplexed applications such as online monitoring systems, this sensor permits faster scans of the entire sensor field and thus data for each machine will be refreshed more frequently, resulting in improved protection and analysis. In battery-operated or energy harvesting sensors, the LPA100T offers an ideal solution to extend battery life and sensor capability, especially valuable in wireless applications. A certified version (Class I, Div 2/Zone 2) is also available for use in hazardous areas where flammable or explosive atmospheres are present.



Connections	
Function	Connector pin
power	1
common	2
accel signal	3
temp signal	4
shield*	shell

* See note 1 on back

Key features

- Ultra low power consumption 300 µW
- Operates down to 3V
- Fast BOV settling time of <10 ms
- Comes with the industry popular M12 connector
- Hermetically sealed
- ESD-protected
- Reverse wiring protection
- Manufactured in an approved ISO 9001 and AS9100 facility

Certifications

CE

Hazardous location certified version available

Meggitt Sensing Systems

Our energy product competencies and services
Machinery protection | Condition monitoring | Integrated performance monitoring | Partial discharge monitoring | Sensors for extreme environments
Ignition systems | Flame detection and analysis | Industrial monitoring solutions | Nuclear products

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MEGGiTT
smart engineering for
extreme environments

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Specifications

		English	Metric
Sensitivity, ± 5%, 25° C		50 mV/g	5.1 mV/m/sec²
Acceleration range		25 g peak	245 m/sec² peak
Amplitude nonlinearity		1%	1%
Frequency response	**±5%**	180 - 300,000 CPM	3 - 5,000 Hz
	±10%	60 - 540,000 CPM	1 - 9,000 Hz
	± 3 dB	18 - 900,000 CPM	0.3 - 15,000 Hz
Resonance frequency		1.8 kCPM	30 kHz
Transverse sensitivity, max		5% of axial	5% of axial
Sensitivity variation with temp	**-25° C**	-10%	-10%
	+120° C	+10%	+10%
Temperature sensor			
Temperature signal sensitivity		-10.9 mV/°C	-10.9 mV/°C
Voltage at 0° C		2.05 - 2.15 V	2.05 - 2.15 V
Temperature range		-40 to +248° F	-40 to +120° C
Voltage source		3.0 - 5.5 VDC	3.0 - 5.5 VDC
Current (no cable)		100 µA max	100 µA max
Electrical noise, equiv g			
Broadband 2. 5 Hz to 25 kHz		660 µg	6.47 mm/sec²
Spectral	**10 Hz**	60 µg/√Hz	0.588 mm/sec²/√Hz
	100 Hz	16 µg/√Hz	0.156 mm/sec²/√Hz
	1000 Hz	5 µg/√Hz	0.049 mm/sec²/√Hz
Output impedance, max		1000 Ω	1000 Ω
Bias output voltage, settling time, 25° C		‹10 ms	‹10 ms
Including temp effects		1.5 VDC ±5%	1.5 VDC ±5%
Grounding		case isolated, internally shielded	case isolated, internally shielded
Vibration limit		500 g peak	4,900 m/sec² peak
Shock limit		5,000 g peak	49,000 m/sec² peak
Electromagnetic sensitivity, equiv g max		150 µg/gauss	1.47 mm/sec²/gauss
Sealing		hermetic	hermetic
Base strain sensitivity, max		0.0002 g/µstrain	1.9 mm/sec²/µstrain
Sensing element design		PZT, shear	PZT, shear
Weight		3.17 oz	90 g
Case material		316L stainless steel	316L stainless steel
Mounting		1/4-28 UNF tapped hole	1/4-28 UNF tapped hole
Mating connector[1]		M12 style, 4 or 5 pin	M12 style, 4 or 5 pin
Recommended cabling		J12/J9T4A	J12/J9T4A

Note: [1] For installations requiring CE conformance, cable shield must be tied to sensor case
Accessories supplied: SF6M mounting stud, calibration data (level 2)

Note: Due to continuous process improvement, specifications are subject to change without notice.
This document is cleared for public release.

Contact

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