PCB PIEZOTRONICS
AN AMPHENOL COMPANY

SERIES
3711F, 3713F, 3741F & 3743G

VC MEMS ACCELEROMETERS


Series 3713F


Series 3743G


Series 3711F


Series 3741F

- Measurement ranges from ± 2 to ± 200 g
- Broad frequency response
- Reduced spectral noise
- Improved broadband resolution
- Single-ended or differential output signal
- Lightweight and rugged housings

TYPICAL APPLICATIONS

- Aerospace Vibration Testing - Flutter/Buffeting & Landing Gear
- Simulated Environmental Testing with Shakers & Centrifuges
- Suspension, Shock Absorption, and Damping
- Driveability, Ride & Handling
- Brake & Steering Development
- Road Load Data Acquisition (RLDA)

CE

LOW FREQUENCY MEASUREMENTS WITH GAS-DAMPED, SILICON MEMS TECHNOLOGY

PCB® Series 3711 (single axis), 3713 (triaxial), and 3741 (single axis, differential output), and 3743 (triaxial, differential output) variable capacitance MEMS (VC MEMS) accelerometers are designed to measure low-frequency vibration and motion and are offered in full-scale ranges from ± 2 to ± 200 g to accommodate a variety of testing requirements. The units feature gas-damped, silicon MEMS sensing elements for uniform, repeatable performance and offer high frequency overload protection.

Electrically, the units offer a single-ended or differential output signal with power, signal, and ground leads for each channel. Supply voltage regulation permits operation from +5 up to +32 VDC and the low-noise, low-impedance output signal may be transmitted over long cable lengths without degradation.

As with all PCB instrumentation, these sensors are complemented with toll-free applications assistance, 24-hour customer service, and are backed by a no-risk policy that guarantees total customer satisfaction.

The rugged and durable single ended output Series 3711 & 3713 VC MEMS accelerometers are hermetically sealed in a robust titanium housing allowing for a very stable and accurate measurement in the most severe operating environments. In addition, this series is inherently insensitive to base strain and transverse acceleration effects. Supply voltage regulation permits operation from +5 to +28 VDC and the single-ended, low-noise, low-impedance output signal may be transmitted over long cable lengths without degradation. The series is available in single axis and triaxial versions with a multi-pin, threaded, electrical connector for easy installation and setup.

Series 3711F11

Series 3713F11

The precision Series 3741 and 3743 VC MEMS accelerometers offer a differential output signal for common-mode noise rejection and incorporate many advanced features. This includes supply voltage regulation and a temperature compensation circuit for stable performance over the entire operational temperature range. The 3741 features a low profile and lightweight hard-anodized aluminum housing with an integral, 4-conductor 10 ft (3 m) shielded cable. An optional mounting adaptor, 080A208, facilitates biaxial or triaxial configurations. The 3743 features a rugged, hermetic Stainless Steel package with an integral M8x1 8-pin connector or an integral cable rated to IP67 for stable performance in extreme measurement environments.

Series 3741F12

Series 3743G11

Series 3743G12

SINGLE ENDED OUTPUT – VC MEMS

Sensitivity	Measurement Range (pk)	Frequency (± 5%)	Broadband Resolution (rms)
6.75 mV/g	± 200 g	0 to 1500 Hz	6.0 mg
13.5 mV/g	± 100 g	0 to 1500 Hz	3.0 mg
27.0 mV/g	± 50 g	0 to 1500 Hz	1.5 mg
45.0 mV/g	± 30 g	0 to 1500 Hz	0.9 mg
135 mV/g	± 10 g	0 to 1000 Hz	0.3 mg
675 mV/g	± 2 g	0 to 250 Hz	0.06 mg

Model Number	3711 Single Axis	3713 Triaxial
Overload Limit (Shock)	± 5000 g pk	± 5000 g pk
Temperature Range	-65 to +250 °F (-54 to +121 °C)	-65 to +250 °F (-54 to +121 °C)
Excitation Voltage	5 to 32 VDC	5 to 28 VDC
Housing Material	Titanium	Titanium
Sealing	Hermetic	Hermetic
Size (H x L x W)	0.45 x 0.85 x 0.85 in (11.4 x 21.6 x 21.6 mm)	0.80 in cube (20.3 mm cube)
Weight: Connector style	0.58 oz (16.3 gm)	0.60 oz (17.3 gm)
Electrical Connector	1/4-28 4-Pin	9-Pin
Supplied Accessories		
Easy Mount Clip	080A152	—
Adhesive Base	—	080A12
Mounting Screw / Stud	081A113 / M081A113	081B05 / M081B05
Additional Accessories		
Triaxial Mounting Block	080A153	—
Mounting Cable Connector	AY	EN
Recommended Cable	010	037

DIFFERENTIAL OUTPUT – VC MEMS

Sensitivity	Measurement Range (pk)	Frequency (± 5%)	Broadband Resolution (rms)
13.5 mV/g	± 200 g	0 to 1500 Hz	6.0 mg
27 mV/g	± 100 g	0 to 1500 Hz	3.0 mg
54 mV/g	± 50 g	0 to 1500 Hz	1.5 mg
90 mV/g	± 30 g	0 to 1500 Hz	0.9 mg
270 mV/g	± 10 g	0 to 1000 Hz	0.3 mg
540 mV/g	± 5 g	0 to 700 Hz	0.15 mg
1350 mV/g	± 2 g	0 to 250 Hz	0.06 mg

Model Number	3741 Single Axis	3743 Triaxial
Overload Limit (Shock)	± 5000 g pk	± 5000 g pk
Temperature Range	-65 to +250 °F (-54 to +121 °C)	-65 to +250 °F (-54 to +121 °C)
Excitation Voltage	5 to 32 VDC	5 to 32 VDC
Housing Material	Anodized Aluminum	Stainless Steel
Sealing	Epoxy	Hermetic or IP67 (integral cable)
Size (H x L x W)	0.30 x 1.00 x 0.85 in (7.62 x 25.4 x 21.6 mm)	0.76 x 1.03 x 0.66 in (19.3 x 26.2 x 16.8 mm)
Weight without cable	0.35 oz (9.9 gm)	0.92 oz (26 gm)
Electrical Connector	10 ft (3 m) integral cable to pigtails	M8x1 8-pin connector or 10 ft (3 m) integral cable
Supplied Accessories		
Mounting Screws/Studs	(2) 081A103 / (2) M081A103	(2) 081A135 screws
Additional Accessories		
Triaxial Mounting Block	080A208	—
Recommended Cable	—	528Gxx

MODEL NUMBERING SYSTEM					
1) Series					
3711F	Single axis, VC MEMS accelerometer, singled ended				
3713F	Triaxial, VC MEMS accelerometer, singled ended				
3741F	Single axis, VC MEMS accelerometer, differential				
3743G	Triaxial, VC MEMS accelerometer, differential				
	2) Cable				
	11	Multi-pin, threaded, electrical connector (3711, 3713 and 3743 only)			
	12	Standard, 10 ft (3.0 m) integral cable and pigtail termination (3741 & 3743 only)			
		3) Measurement Range			
		2G	± 2 g measurement range		
		5G	± 5 g measurement range (3741 & 3743 only)		
		10G	± 10 g measurement range		
		30G	± 30 g measurement range		
		50G	± 50 g measurement range		
		100G	± 100 g measurement range		
		200G	± 200 g measurement range		
			4) Integral Cable Length (add only if selecting other than standard 10 ft (3 m) length)		
			/XXX	Specify XXX as desired cable length in feet (specify MXXX for desired cable length in meters)	
				5) Cable Termination	
				AY	4-socket plug (3741 only)
				JJ	Pigtail, stripped and tinned ends (3741 only)
				NU	Pigtail, stripped and tinned ends (3743G12 only)
				LN	8-pin mini DIN for mating to Models 482C27 or 483C28 signal conditioners (3741 only)
				TD	Triple splice w/shield, 8-pin mini DIN for 482C27 or 483C28 signal conditioners (3743G12 only)
Example					
3743G	12	5G	/020	NU	Triaxial VC MEMS accelerometer, ± 5 g measurement range, 20 ft (6.1 m) integral cable to pigtail leads

RECOMMENDED ACCESSORIES & SIGNAL CONDITIONERS FOR SERIES 3711, 3713, 3741 AND 3743 VC MEMS ACCELEROMETERS

Model 010D10 | 034D10 Cable
10 ft (3 m)
4-Socket Plug to 4-Socket Plug

Model 037P10 Cable
10 ft (3 m)
9-Socket Plug to Pigtails

Model 528G10 Cable
10 ft (3 m)
M8x1 8-Socket Plug to Pigtails

Model 080A152
Easy Mount Clip, 3711

STOCK CABLES

	English	Metric		English	Metric
Cabling for Single Axis Sensors			Cabling for Triaxial Sensors		
4-Socket Plug to 4-Socket Plug			9-Socket Plug to Pigtails (3713 only)		
010D05 | 034D05	5 ft	1.5 m	037P05	5 ft	1.5 m
010D10 | 034D10	10 ft	3.0 m	037P10	10 ft	3.0 m
010D20 | 034D20	20 ft	6.1 m	037P20	20 ft	6.1 m
010D30 | 034D30	30 ft	9.1 m	037P30	30 ft	9.1 m
4-Socket Plug to Pigtails			9-Socket Plug to (3) 4-Socket Plugs (3713 only)		
010P05	5 ft	1.5 m	037A10	10 ft	3.0 m
010P10 | 034A10	10 ft	3.0 m	037A20	20 ft	6.1 m
010P20 | 034A20	20 ft	6.1 m	037A30	30 ft	9.1 m
010P30	30 ft	9.1 m	M8x1 8-socket Plug to Pigtails (3743G only)		
			528G05	5 ft	1.5 m
			528G10	10 ft	3.0 m
			528G20	20 ft	6.1 m
			528G30	30 ft	9.1 m
			528G50	50 ft	15.2 m

Model 080A153
Triaxial Mounting Block, 3711

Model 080A208
Triaxial Mounting Block, 3741

Endevco Model 4418
Single channel
x1, x10, x100 gain
battery powered

Model 478B05
3-channel
unity gain
36 VDC powered
optional external battery pack

Model 482C27
4-channel incremental gain differential,
bridge, and ICP® sensor types

Model 483C28
8-channel line-powered
bridge, differential, and ICP® sensor types

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