PCB PIEZOTRONICS
MTS SYSTEMS CORPORATION

SERIES
3711E, 3713E, & 3741E

MEMS DC RESPONSE ACCELEROMETERS

- Low noise – high resolution
- Measurement capability to 0 Hz
- Full-scale ranges from ± 2g to ± 200g
- Lightweight titanium or aluminum housings
- Single-ended or differential output signal
- High shock protection

TYPICAL APPLICATIONS

- Component validation & system performance
- Vehicle driveability, ride & handling, and component durability
- Suspension, shock absorption and damping studies
- Aerospace testing - flutter, gvt, scale model, etc.
- Simulated environmental testing with shakers & centrifuges
- Rocket launch loading and acceleration

CE

Series 3713E Series 3711E Series 3741E

FOR LOW-FREQUENCY VIBRATION AND MOTION MEASUREMENTS

Looking for a more precise way to measure low-frequency vibration and motion?

PCB® Series 3711E, 3713E, and 3741E MEMS DC response accelerometers were specifically designed to help test engineers take more reliable low-frequency vibration and motion measurements. Offered in full-scale ranges from 2g to ± 200g, the accelerometers are available in single axis (Series 3711E and Series 3741E) and triaxial (Series 3713E) configurations. They also feature low spectral noise and high resolution, which makes them ideal for a wide variety of testing applications.

Electrically, the units offer a single-ended (Series 3711E and Series 3713E) or differential (Series 3741E) output signal with power, signal, and ground leads for each channel. Supply voltage regulation permits operation from +6 VDC to +30 VDC and the low-noise, low-impedance output signal may be transmitted over long cable lengths without degradation.

Rugged and Durable Series 3711E and 3713E MEMS DC Response Accelerometers Series 3711E and series 3713E have a hermitically sealed titanium case, enabling them to perform in harsh environments. The series is available in single and triaxial versions with a 10 ft (3m) integral cable or a multi-pin, threaded, electrical connector for easy installation and setup. Gas damping is used in all accelerometers in this series, and is used to mitigate the accelerometer output from saturation which can occur if the sensor is excited by random vibration. The advantage of gas over liquid damping is that gas is minimally affected by temperature changes.

Series 3713E11 **Series 3711E11**

Precision Series 3741E MEMS DC Response Accelerometers These accelerometers feature a low-profile and low mass hard anodized housing for added durability. This series offers a differential output signal for common-mode noise rejection and incorporate many advanced features including supply voltage regulation and temperature compensation for stable performance over the entire operational range. Each unit is provided with an integral, 4-conductor, 10ft (3m) shielded cable. An optional mounting adapter, Model 080A208 facilitates triaxial measurement configurations.

Series 3741E12

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

SINGLE ENDED OUTPUT – MEMS DC RESPONSE

Sensitivity	Measurement Range (pk)	Frequency (Nom. ±3dB)	Broadband Resolution (rms)	
3713E and 3711E			3713E	3711E
10mV/g	±200g	0 to 3000Hz	3mg	4mg
40mV/g	±50g	0 to 2000Hz	1mg	1mg
80mV/g	±25g	0 to 1500Hz	0.3mg	0.5mg
200mV/g	±10g	0 to 1000Hz	0.2mg	0.2mg
1000mV/g	±2g	0 to 400Hz	0.1mg	0.1mg

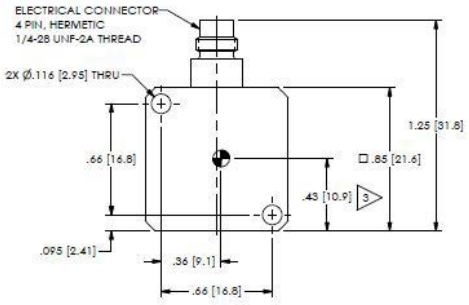
Single Ended Output - MEMS DC Response	3711E Single Axis	3713E Triaxial
Overload Limit (Shock)*	±5000g pk	±5000g pk
Temperature Range	-65 to +250°F (-54 to +121°C)	-65 to +250°F (-54 to +121°C)
Excitation Voltage	6 to 30 VDC	6 to 30 VDC
Housing Material	Titanium	Titanium
Sealing	Hermetic	Hermetic
Size (H x L x W)	0.45 x 0.85 x 0.85 in (11.4 x 21.6 x 21.6 mm)	0.85 in cube (21.6 mm cube)
Weight: Connector style Integral cable style	16.3 gm 65.0 gm	22.7 gm 119.0 gm
Electrical Connector	1/4-28 4-pin or 10ft (3m) integral cable	9 pin or 10ft (3m) integral cable
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 – SERIES 3741E MEMS DC RESPONSE

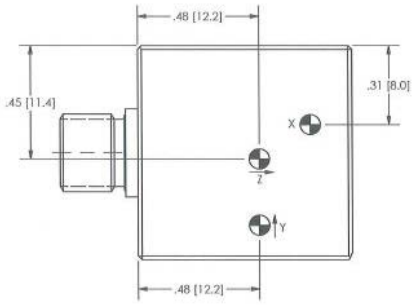
Sensitivity	Measurement Range (pk)	Frequency (Nom. ±3dB)	Broadband Resolution (rms)
20mV/g	±200g	0 to 3000Hz	5.6mg
40mV/g	±100g	0 to 2500Hz	2.8mg
80mV/g	±50g	0 to 2000Hz	1.0mg
160mV/g	±25g	0 to 1500Hz	0.6mg
400mV/g	±10g	0 to 1000Hz	0.4mg
2000mV/g	±2g	0 to 400Hz	0.1mg

Differential Output - MEMS DC Response 3741E	
Overload Limit (Shock)*	± 5000 g pk
Temperature Range	-65 to +250 °F (-54 to +121 °C)
Excitation Voltage	6 to 30 VDC
Housing Material	Anodized Aluminum
Sealing	Epoxy
Size (H x L x W)	0.30 x 1.00 x 0.85 in (7.62 x 25.4 x 21.6 mm)
Weight without cable	9.9 gm
Weight - connector style	16.3gm
Electrical Connector	10 ft (3 m) integral cable
Supplied Accessories	
Mounting Screws/Studs	(2) 081A103 / (2) M081A103
Additional Accessories	
Triaxial Mounting Block	080A208

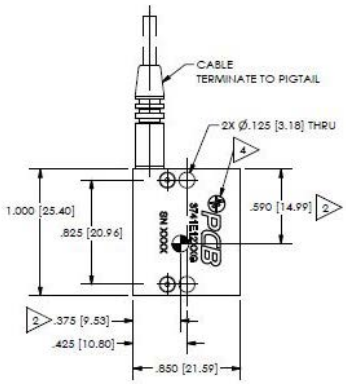
* 2g is 2000g peak



Series 3711E Drawing



Series 3713E Drawing



Series 3741E Drawing

MODEL NUMBERING SYSTEM					
1) Series					
3741E	Single axis, MEMS DC response accelerometer				
3713E	Triaxial, MEMS DC response accelerometer				
3711E	Single axis, MEMS DC response accelerometer				
	2) Cable				
	11	Multi-pin, threaded, electrical connector (3711 & 3713 only)			
	12	Standard, 10 ft. (3.0 m) integral cable and pigtail termination			
		3) Measurement Range			
		2G	± 2 g measurement range corresponding to 1000 mV/g sensitivity (3741E sensitivity of 2000 mV/g)		
		10G	± 10 g measurement range corresponding to 200 mV/g sensitivity (3741E sensitivity of 400 mV/g)		
		25G	± 25 g measurement range corresponding to 80 mV/g sensitivity (3741E sensitivity of 160 mV/g)		
		50G	± 50 g measurement range corresponding to 40 mV/g sensitivity (3741E sensitivity of 80 mV/g)		
		100G	± 100 g measurement range corresponding to 20 mV/g sensitivity (3741E sensitivity of 40 mV/g)		
		200G	± 200 g measurement range corresponding to 10 mV/g sensitivity (3741E sensitivity of 20 mV/g)		
			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-pin plug (Series 3711E & 3741E only)
				DZ	Pigtail, stripped and tinned ends (Series 371E1 & 3713E only)
				EN	9-pin plug (Series 3713E only)
				HW	9-pin D-sub plug for mating to Model 478A30 signal conditioner (Series 3741 only)
				JJ	Pigtail, stripped and tinned ends (Series 3741E only)
				LN	8-pin mini DIN for mating to Models 482C27 or 483C28 signal conditioners (Series 3741E only)
				LT	8-pin mini DIN for mating to Models 482C27 or 483C28 signal conditioners (Series 3711E only)
Example					
3713E	11	10G	/005	DZ	Single axis MEMS DC response accelerometer, ± 10 g measurement range, 5 ft. (1.5 m) integral cable pigtail

Recommended Accessories & Signal Conditioners for Series 3711E and 3713E MEMS DC Response Accelerometers

Model 010D10 Cable
10 ft (3 m)
4-pin plug to 4-pin plug

Model 037P10 Cable
10 ft (3m)
9-pin plug to pigtails

Model 080A153
Easy mount triaxial block, 3711

Model 080A152
Easy mount clip, 3711

IN-STOCK CABLE DESCRIPTIONS					
	English	Metric		English	Metric
Cabling for Single Axis Sensors (Series 010 – 4-Conductor Cable)			Cabling for Triaxial Sensors (Series 037 – 10-Conductor Cable)		
4-Pin Plug to 4-Pin Plug			9-Pin Plug to Pigtails		
Model 010D05	5 ft	1.5 m	Model 037P05	5 ft	1.5 m
Model 010D10	10 ft	3.0 m	Model 037P10	10 ft	3.0 m
Model 010D20	20 ft	6.1 m	Model 037P20	20 ft	6.1 m
Model 010D30	30 ft	9.1 m	Model 037P30	30 ft	9.1 m
4-Pin Plug to Pigtails			9-Pin Plug to Three 4-Pin Plugs		
Model 010P05	5 ft	1.5 m	Model 037A10	10 ft	3.0 m
Model 010P10	10 ft	3.0 m	Model 037A20	20 ft	6.1 m
Model 010P20	20 ft	6.1 m	Model 037A30	30 ft	9.1 m
Model 010P30	30 ft	9.1 m			

Model 478A01
Single-channel
unity gain
internal battery powered

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

Recommended Accessory & Signal Conditioners for Series 3741E MEMS DC Response Accelerometers

Model 080A208
Triaxial mounting block

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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PCB Piezotronics, Inc. is a designer and manufacturer of microphones, vibration, pressure, force, torque, load, and strain sensors, as well as the pioneer of ICP® technology used by design engineers and predictive maintenance professionals worldwide for test, measurement, monitoring, and control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, OEM applications, and more. With a worldwide customer support team, 24-hour SensorLine℠, and a global distribution network, PCB® is committed to Total Customer Satisfaction. Visit www.pcb.com for more information. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corporation. Additional information on MTS can be found at www.mts.com.

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