

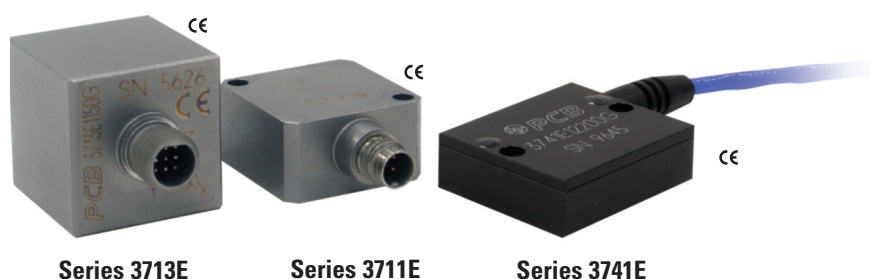


MEMS DC Response Accelerometers

For low-frequency vibration and motion measurements

Highlights

- Low noise – high resolution
- Measurement capability to 0 Hz
- Full-scale ranges from $\pm 2g$ to $\pm 200g$
- Lightweight titanium or aluminum housings
- Single-ended or differential output signal
- High shock protection
- Gas damping
- Hermetically sealed (Series 3711E and 3713E)



Applications

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

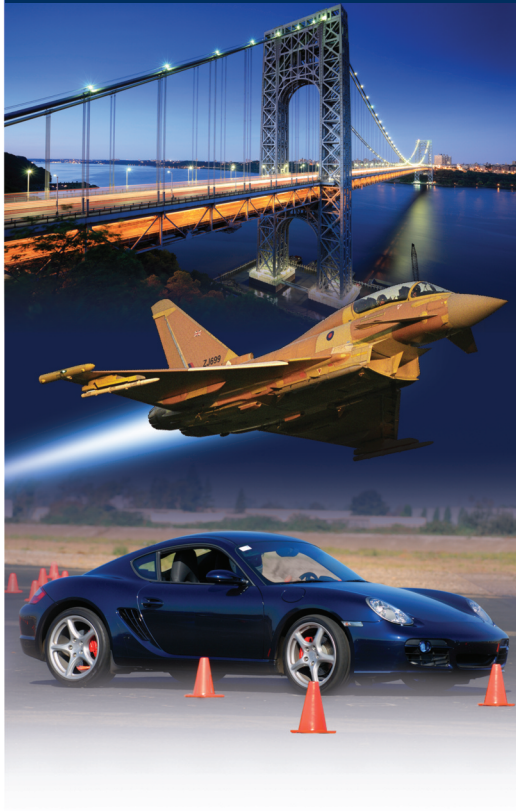
Looking for a more precise way to measure low-frequency vibration and motion?

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 $\pm 200g$, 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.



Series 3711E, 3713E & 3741E



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.

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.

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 - Series 3713E and 3711E MEMS DC Response

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

Single Ended Output - MEMS DC Response

	3711E Single Axis	3713E 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	6 to 30 VDC	6 to 30 VDC
Housing Material	Titanium	Titanium
Sealing	Hermetic	Hermetic
Size (HxLxW)	0.45x0.85x0.85in 11.4x21.6x21.6mm	0.85in Cube 21.6mm Cube
Weight - integral cable style	65.0gm	119.0gm
Weight - connector style	16.3gm	22.7gm
Electrical Connector	1/4-28 4-pin or 10ft (3m) integral cable	9 pin or 10ft (3m) integral cable
Supplied Accessories	3711E Single Axis	3713E Triaxial
Easy Mount Clip	080A152	—
Adhesive Base	—	080A12
Mounting Screw/Stud	081A113 M081A113	081B05 M081B05
Additional Accessories	3711E Single Axis	3713E Triaxial
Triaxial Mounting Block	080A153	—
Mounting Cable Connector	AY	EN
Recommended Cable	010	037

*2g is 2000 peak

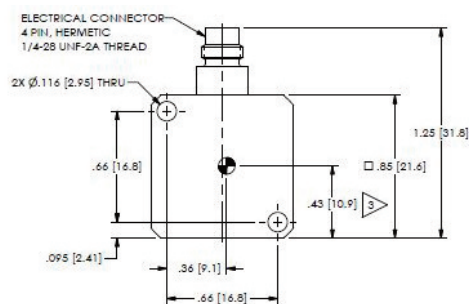
Differential Output - Series 3741E MEMS DC Response

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

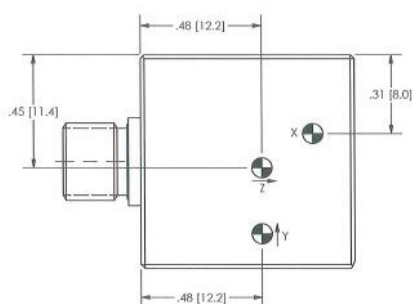
Differential Output - MEMS DC Response 3741E

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 (HxLxW)	0.30x1.00x0.85in 7.62x25.4x21.6mm
Weight - without cable	9.9gm
Weight - connector style	16.3gm
Electrical Connector	10ft (3m) integral cable
Supplied Accessories	
Mounting Screw/Stud	(2) 081A103 M081A103
Additional Accessories	
Triaxial Mounting Block	080A208

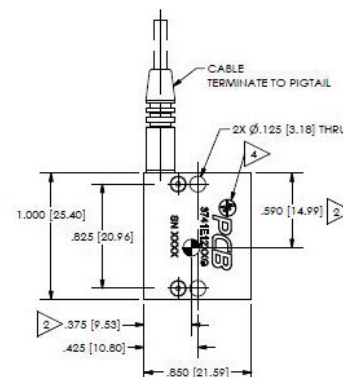
* 2g is 2000g peak



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 integral cable other than standard 10 ft - 3.0 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 3711E & 3713E only)
EN	9-pin plug (Series 3713E only)
HW	9-pin D-sub plug for mating to Model 478A30 signal conditioner (Series 3741E 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
-------	----	-----	------	----	------------------------------------------------------------------------------------------------------------



Series 3711E, 3713E & 3741E

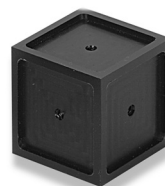
Recommended Accessories & Signal Conditioners for Series 3711E and 3713E MEMS DC Response Accelerometers



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



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



Model 080A153
Triaxial Mounting Block



Model 080A152
Easy mount clip

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
Includes AC power adaptor
Optional external battery pack

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



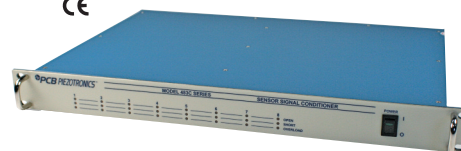
Model 080A208
Triaxial Mounting Block

CE



Model 482C27
4-channel
Incremental gain
Differential, single-ended
Bridge & ICP® sensor types

CE



Model 483C28
8-channel
Line-powered
Bridge, Differential & ICP® sensor types



PCB PIEZOTRONICS INC.
A PCB GROUP COMPANY

3425 Walden Avenue, Depew, NY 14043-2495 USA

Toll-Free in USA 800-828-8840

24-hour SensorLineSM 716-684-0001

Fax 716-684-0987 E-mail info@pcb.com

Web Site www.pcb.com

AS9100 CERTIFIED ■ ISO 9001 CERTIFIED ■ A2LA ACCREDITED to ISO 17025

© 2015 PCB Group, Inc. In the interest of constant product improvement, specifications are subject to change without notice. PCB, ICP, Modally Tuned, Spindler, Swiveler and TORKDISC are registered trademarks of PCB Group. SoundTrack LXT, Spark and Blaze are registered trademarks of PCB Piezotronics. SensorLine is a service mark of PCB Group. All other trademarks are property of their respective owners.

TM-VIB-3741-3711-3713-0315

Printed in U.S.A.

PCB Piezotronics, Inc. manufactures accelerometers, force sensors, load cells, microphones, pressure transducers and transmitters, strain sensors, torque sensors, signal conditioners, cables, and accessories. This instrumentation is used for test, measurement, monitoring, and feedback control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, and OEM applications. PCB Piezotronics offers exceptional customer service, 24-hour technical assistance, and the industry's only commitment to **Total Customer Satisfaction.**

Visit www.pcb.com to locate
your nearest sales office