



MEMS DC Response Accelerometers

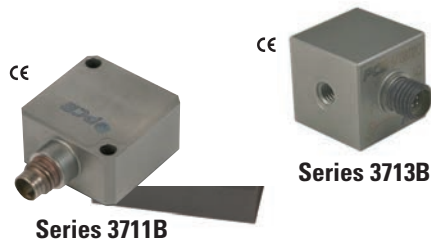
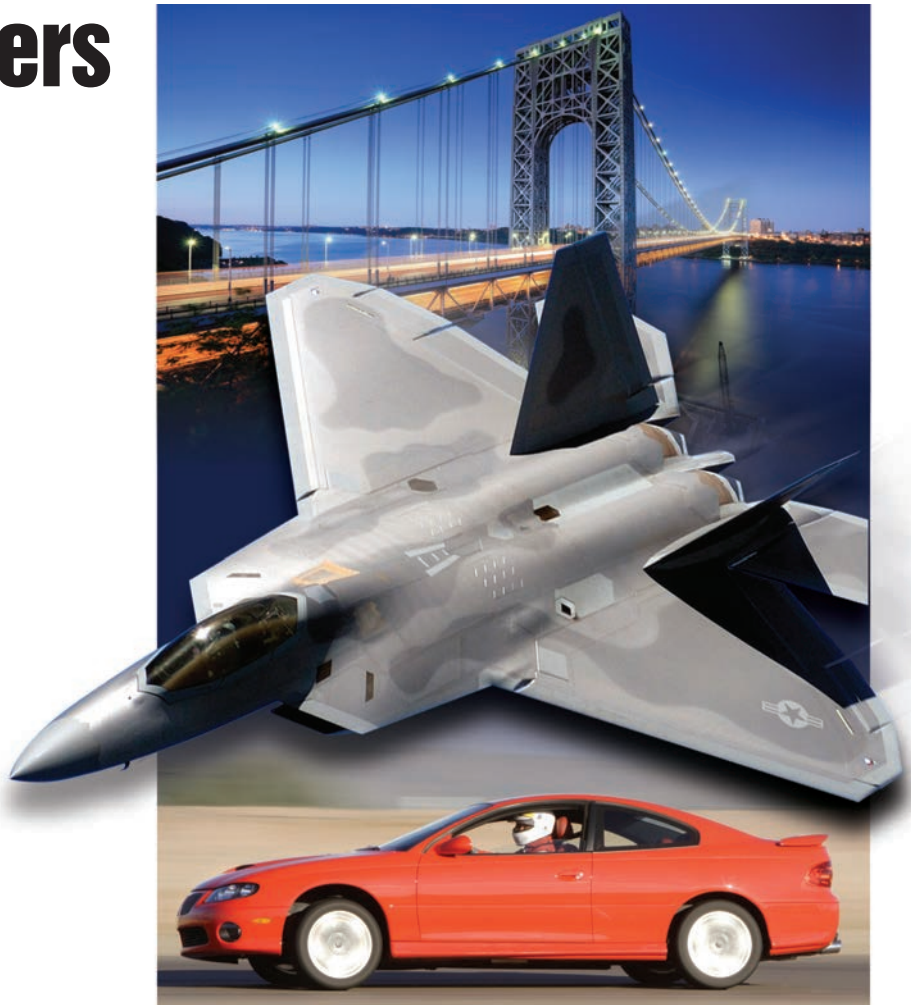
Gas-damped, silicon MEMS sensing elements

Highlights

- Series 3713B now 78% lighter and 62% smaller
- Measurement capability to 0 Hz
- Full-scale ranges from ± 2 to ± 200 g
- Lightweight titanium or aluminum housings
- Constant & low frequency acceleration measurements
- Single-ended or differential output signal
- High frequency overload protection

Applications

- Aerospace Vibration Testing - Flutter, GVT, Etc.
- Simulated Environmental Testing with Shakers & Centrifuges
- Suspension, Shock Absorption and Damping Studies
- Driveability and Ride & Handling
- Brake & Steering Development
- Road Load Data Acquisition



CE

Series 3741B

PCB® Series 3711 (single axis), 3713 (triaxial), and 3741 (single axis) MEMS DC response 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 +6 to +30 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.



Series 3711, 3713 & 3741

Rugged and Durable Series 3711 & 3713 MEMS DC Response sensors 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 +6 to +30 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 10 ft (3 m) integral cable or a multi-pin, threaded, electrical connector for easy installation and setup.



Series 3711B11



Series 3713B11



Series 3711B12
(with integral cable)



Series 3713B12
(with integral cable)

Precision Series 3741 MEMS DC Response sensors are low-profile and low-mass with mechanical overload stops and a hard-anodized aluminum housing for added durability. The units offer a differential output signal for common-mode noise rejection and incorporate many advanced features including supply voltage regulation and a proprietary temperature compensation circuit for stable performance over the entire operational temperature range. Each unit is provided with an integral, 4-conductor, 10 ft (3 m) shielded cable. An optional mounting adaptor, Model 080A208, facilitates triaxial measurement configurations.



Series 3741B12

Single Ended Output – MEMS DC Response

Sensitivity	Measurement Range (pk)	Frequency ($\pm 5\%$)	Broadband Resolution (rms)
10 mV/g	± 200 g	0 to 850 Hz	21.1 mg
40 mV/g	± 50 g	0 to 1000 Hz	6.0 mg
66.7 mV/g	± 30 g	0 to 1000 Hz	3.5 mg
66.7 mV/g, 2.5 V offset	± 30 g	0 to 25 Hz	2.4 mg
200 mV/g	± 10 g	0 to 1000 Hz	1.2 mg
1000 mV/g	± 2 g	0 to 250 Hz	0.25 mg

Model Number	3711 Single Axis	3713 Triaxial
Overload Limit (Shock)	± 3000 g pk	± 3000 g pk
Temperature Range	-65 to +250 °F -54.0 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	0.8 in Cube 20.3 mm Cube
Weight	Connector style Integral cable style	17.3 gm 119.0 gm
Electrical Connector	1/4-28 4-Pin or 10 ft. (3 m) Integral Cable	9-Pin or 10 ft. (3 m) 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 – MEMS DC Response

Sensitivity	Measurement Range (pk)	Frequency ($\pm 5\%$)	Broadband Resolution (rms)
10 mV/g	± 200 g	0 to 850 Hz	21.1 mg
20 mV/g	± 100 g	0 to 1000 Hz	12.0 mg
40 mV/g	± 50 g	0 to 1000 Hz	5.2 mg
66.7 mV/g	± 30 g	0 to 1000 Hz	3.5 mg
200 mV/g	± 10 g	0 to 1000 Hz	1.2 mg
1000 mV/g	± 2 g	0 to 250 Hz	0.25 mg

Overload Limit (Shock)	± 3000 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
Electrical Connector	10 ft (3 m) Integral Cable

Supplied Accessories	
Mounting Screws/Studs	(2) 081A103 (2) M081A103
Additional Accessories	
Triaxial Mounting Block	080A208

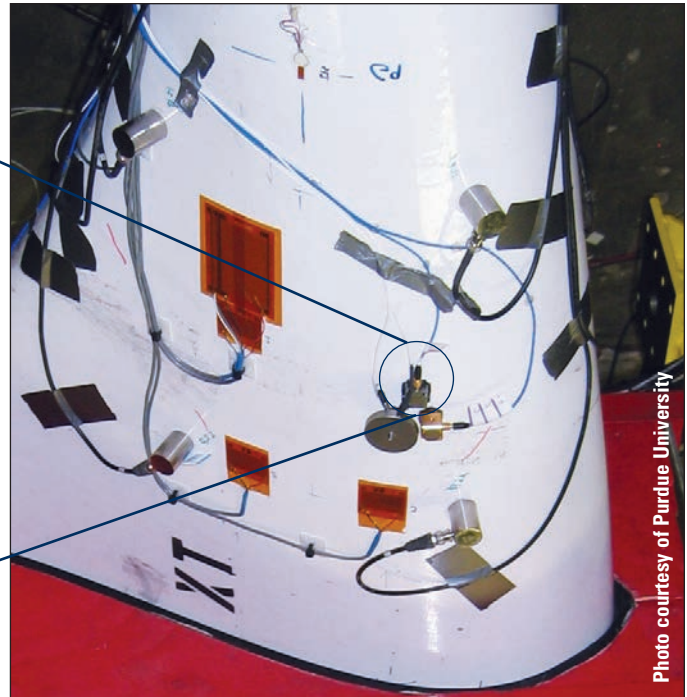
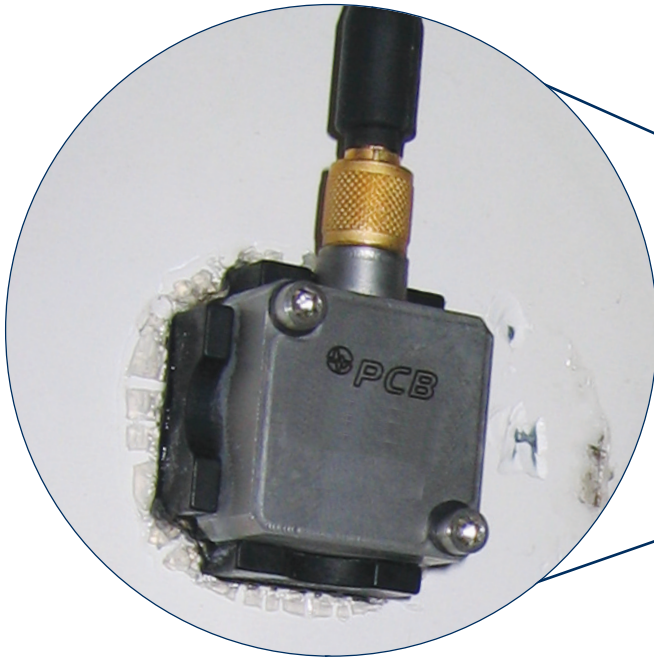


Photo courtesy of Purdue University

Model Numbering System

1) Series

- 3741B Single axis, MEMS DC response accelerometer
- 3713B Triaxial, MEMS DC response accelerometer
- 3711B 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
- 10G ± 10 g measurement range corresponding to 200 mV/g sensitivity
- 30G ± 30 g measurement range corresponding to 66.7 mV/g sensitivity
- 50G ± 50 g measurement range corresponding to 40 mV/g sensitivity
- 100G ± 100 g measurement range corresponding to 20 mV/g sensitivity (Series 3741 only)
- 200G ± 200 g measurement range corresponding to 10 mV/g sensitivity

4) Integral Cable Length (add only if selecting internal 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 3711 & 3741 only)
- DZ Pigtail, stripped and tinned ends (Series 3711 & 3713 only)
- EN 9-pin plug (Series 3713B11 only)
- HW 9-pin D-sub plug for mating to Model 478A30 signal conditioner (Series 3741 only)
- LN 8-pin mini DIN for mating to Models 482C27 or 483C28 signal conditioners (Series 3741 only)
- LT 8-pin mini DIN for mating to Models 482C27 or 483C28 signal conditioners (Series 3711 only)

Example

3713B 11 10G /005 DZ Single axis MEMS DC response accelerometer, ± 10 g measurement range, 5 ft. (1.5 m) integral cable pigtail

Additional Version

3711B 03 Single axis MEMS DC response accelerometer; multi-pin, threaded, electrical connector; ± 30 g measurement range; low pass filter; 2.5 V offset



Recommended Accessories & Signal Conditioners for Series 3711 and 3713 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 3741 MEMS DC Response Accelerometers



Model 080A208
Triaxial Mounting Block



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



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



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