



SERIES  
3711E, 3713E, & 3741E

## MEMS DC RESPONSE ACCELEROMETERS

- 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

### 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  $\pm 200g$ , 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.

**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.

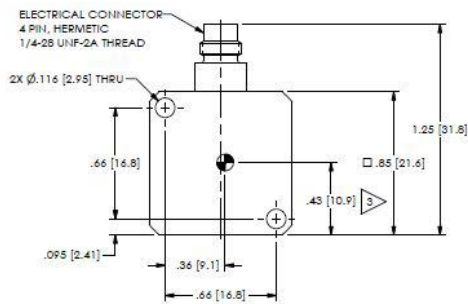
**SINGLE ENDED OUTPUT – MEMS DC RESPONSE**

| 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                |                        | 16.3 gm                                       | 22.7 gm                           |       |
| Integral cable style                   |                        | 65.0 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                               |       |

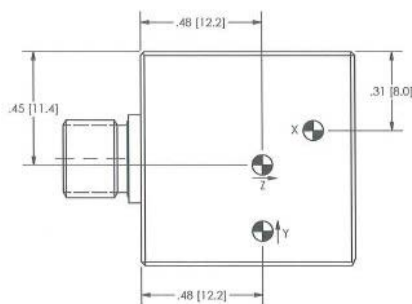
**DIFFERENTIAL OUTPUT – SERIES 3741E MEMS DC RESPONSE**

| 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                                       |                            |

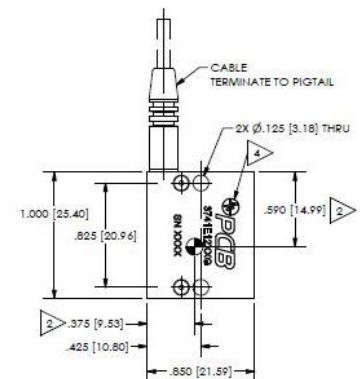
\* 2g is 2000g peak



Series 3711E Drawing



Series 3713E Drawing



Series 3741E Drawing

| MODEL NUMBERING SYSTEM   |   |     |      |    |  |
|--|---|-----|------|----|--|
| <b>1) Series</b>   |   |     |      |    |  |
| 3741E  | Single axis, MEMS DC response accelerometer   |     |      |    |  |
| 3713E  | Triaxial, MEMS DC response accelerometer  |     |      |    |  |
| 3711E  | Single axis, MEMS DC response accelerometer   |     |      |    |  |
| <b>2) Cable</b>  |   |     |      |    |  |
| 11   | Multi-pin, threaded, electrical connector (3711 & 3713 only)                                    |     |      |    |  |
| 12   | Standard, 10 ft. (3.0 m) integral cable and pigtail termination                                 |     |      |    |  |
| <b>3) Measurement Range</b>  |   |     |      |    |  |
| 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)   |     |      |    |  |
| <b>4) Integral Cable Length (add only if selecting other than standard 10 ft ( 3 m ) length)</b> |   |     |      |    |  |
| /XXX   | Specify XXX as desired cable length in feet (specify MXXX for desired cable length in meters)   |     |      |    |  |
| <b>5) Cable Termination</b>  |   |     |      |    |  |
| 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 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)    |     |      |    |  |
| <b>Example</b>   |   |     |      |    |  |
| 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<br>(Series 010 – 4-Conductor Cable) |         |        | Cabling for Triaxial Sensors<br>(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