PM Instrumentation

# 75C1
Piezoresistive Accelerometer

ASC GERMAN SENSOR ENGINEERING

- *Triaxial*
- *Wheatstone Bridge*
- *mV Output*
- *Aluminium Housing*
- *Made in Germany*


## Piezoresistive MEMS Technology

*The accelerometer is based on an advanced piezoresistive MEMS technology and can be used in a low frequency response up from 0Hz. The piezoresistive sensor element is made of monolithic resistors. These resistors are attached to carrier-elements and are electrically connected in a Wheatstone bridge. The electrical signal changes proportional to the vibration.*

### Features
- *Range: 500g, 1000g and 2000g*
- *Small Size*
- *Light Weight*
- *DC Response*
- *±5000g Shock Resistance*
- *Gas Damped*

### Options
- *Customised Cable Length*
- *Customised Connector*
- *TEDS Module*
- *Shunt Resistor*
- *Equipment Exchange (EQX)*

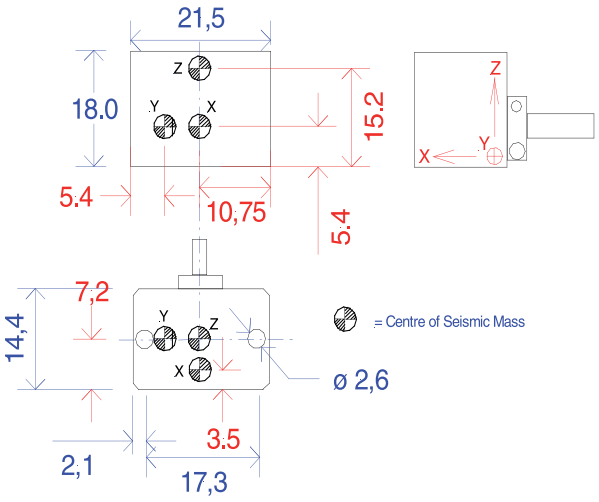
### Applications
- *Automotive Crash Testing*
- *Shock Testing*

## Description

*The model ASC 75C1 is a triaxial accelerometer based on piezoresistive technology. Each axis is working independently as a 4-wire system.*

*The ASC 75C1 is a small and compact accelerometer. The housing is a flat design in hard anodised aluminium.*
*The compact cube form facilitates mounting on different sites. Due to their low mass these sensor models are ideal for testing on light-weight structures. The sensing element in the models has integrated overload stops and therefore the silicon chip is highly shock resistant. The sensors have an excellent non-linearity over a wide frequency response. Electrically they are configured as a full Wheatstone bridge.*

*The models can be obtained with all common sensor ID modules. A very high flexible cable provides a simple mounting. The ASC 75C1 is equipped as standard with 6 meter of rugged Polyurethane cable.*




PM Instrumentation | 59 rue Emile Deschanel | F-92400 Courbevoie | France
+33(0)1 46 91 93 32 | contact@pm-instrumentation.com | www.pm-instrumentation.com

PM Instrumentation

# 75C1
Piezoresistive Accelerometer

## *Typical Specifications*

**MODEL NUMBER ASC 75C1**

| |
|---|
| Type: MEMS Piezoresistive Accelerometer |

**DYNAMIC**

| | | Range (±g) | | |
|---|---|---|---|---|
| | | 500 | 1000 | 2000 |
| Model | | 75C1 | 75C1 | 75C1 |
| Sensitivity[1] | mV/g | 0.4 | 0.15 | 0.13 |
| Frequency response: ±5% | Hz | | 2500 | |
| Resonance frequency | kHz | 15 | 15 | 26 |
| Amplitude non-linearity | % FSO | | ±1 | |
| Damping ratio | | | 0.7 | |
| Transverse sensitivity | % | | <3 | |
| Shock limit | ±g | | 5000 | |
| Recovery time | s | | 0.5 | |

**ELECTRICAL**

| | | | | |
|---|---|---|---|---|
| Excitation voltage | V DC | 3 to 10 | 3 to 10 | 3 to 10 |
| Zero acceleration output | mV | | ±25 | |
| Insulation resistance | MΩ | | >100 | |
| Isolation | | | Case isolated | |

**ENVIRONMENTAL**

| | | | | |
|---|---|---|---|---|
| Temperature coefficient of bias (Thermal zero shift) | g/°C | ±0.25 | ±0.5 | ±1 |
| Temperature coefficient of sensitivity (Thermal sensitivity shirt) | %/°C | | -0.2 | |
| Operating temperature range | °C | | -20 to +80 | |
| Storage temperature range | °C | | -25 to +100 | |
| Humidity / Sealing | | | Epoxy sealed | |

**PHYSICAL**

| | | |
|---|---|---|
| Sensing element | | Piezoresistive MEMS |
| Case material | | Anodized Aluminium |
| Mounting | | 3 mm screws / Adhesive |
| Weight (without cable) | gram | ASC 75C1: 13 gram |
| Cable | | 12 gram/meter; AWG 30, Polyurethane (PUR); Diameter: 3mm |

**FACTORY CALIBRATION (SUPPLIED WITH THE SENSOR)**

| | | | |
|---|---|---|---|
| | Shaker Calibration (Sinusoidal) | | |
| Range | 500g | 1000g | 2000g |
| Sensitivity | at 80Hz and 20g | | |
| Frequency Response | 40Hz to 2500Hz | | |
| | Pendulum (Shock) Calibration | | |
| Range | 500g | 1000g | 2000g |
| Sensitivity | 5 shocks at 100g | | |

**CALIBRATION DIN ISO 17025 (ORDER SEPARATELY)**

| | | | |
|---|---|---|---|
| | Shaker Calibration (Sinusoidal) | | |
| Range | 500g | 1000g | 2000g |
| Sensitivity | at 80Hz and 20g | | |
| Frequency Response | 25Hz to 3150Hz | | |
| | Pendulum (Shock) Calibration | | |
| Range | 500g | 1000g | 2000g |
| Linearity | One shock each at 50g, 100g, 150g, 200g and 250g | | |

***Cable Code 12 wire system:***

| ***x-axis*** | ***y-axis*** | ***z-axis*** |
|---|---|---|
| *Red/Purple: Supply +* | *Red/Grey: Supply +* | *Red: Supply +* |
| *Black/Purple: Supply -* | *Black/Grey: Supply -* | *Black: Supply -* |
| *Green/Purple: Signal +* | *Green/Grey: Signal +* | *Green: Signal +* |
| *White/Purple: Signal -* | *White/Grey: Signal -* | *White: Signal -* |

**ORDERING INFORMATION**

| | | | | |
|---|---|---|---|---|
| ASC | 75C1 | 500 | 6 | A |
| | Model number | Range (Ex. 500 is 500g) | Cable length (meters) | Connector & Pinout |
| | | | | A: no connector |