

## Uniaxial capacitive Low G Accelerometer

**Model  
1420B/GP  
1420C/GP**

- Range Types 2g and 10g
- Resolution 500µg
- Frequency Response DC...800 Hz (±3dB)
- Shock-proof up to 10,000g



## Application

The uniaxial accelerometer Model 1420x/GP was developed for ride comfort measurements in vehicles (NVH). It measures vibrations inside the car, at the seats, at the steering wheel and at other relevant spots. The transducer is mounted directly at the measuring location with two M3 screws.

Outstanding features of the transducer are its great dynamic range, the good resolution (400µg) as well as its very good ZMO stability and its low non-linearity and sensitivity temperature drift. The working temperature range is between -40°C and 120°C (short-term 140°C). This feature especially covers the transducers' application at mobile test stands and at road trial measurements.

## Functional Concept

The model series 1420x/GP is based on a silicon sensor element. The acceleration, which impacts on the seismic mass, is measured exactly using a differential capacitive measurement method. The data are conditioned by an intelligent combinational logic (ASIC).

The model 1420B/GP is designed for a supply voltage of 3V. The model 1420C/GP has an additional electronic feature, stabilizing the bridge voltage. Thus the transducer tolerates fluctuations of the supply voltage in a range of 7V to 18V without impacting the sensitivity of the bridge.

When using a stabilized power supply and a UPS module (optionally available), it is possible to raise the signal voltage level and the reference voltage level to half the supply voltage.

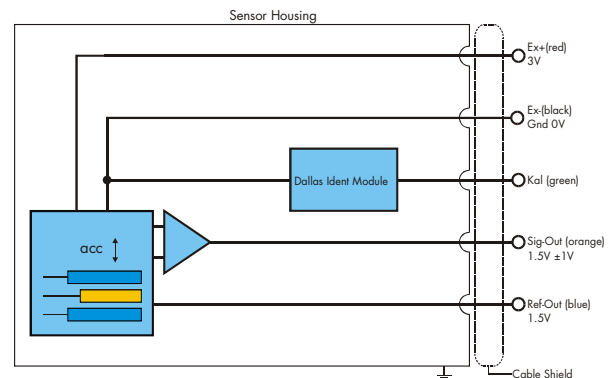
### Options

Customized cable lengths and connectors with specific customer pin assignment; MSC Identification Module (UPS or Dallas version) inside connector or cable housing; conversion to a transducer with digital interface using the Analog Input Module AIM.

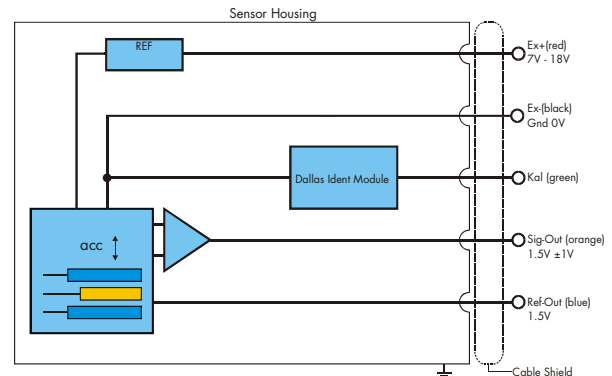
### Accessories

Mounting screws\*)  
For further details please see accessories catalog

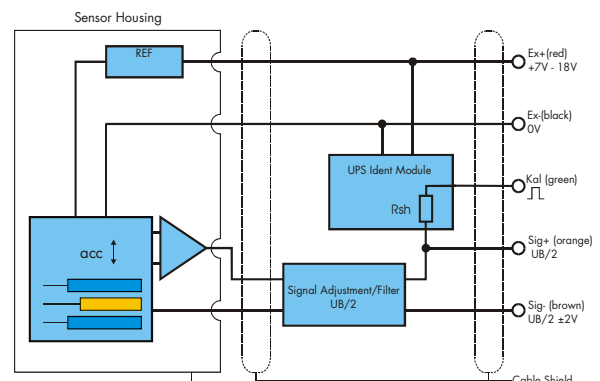
\*) contained in scope of delivery



Schematic diagram Mod. 1420B with Dallas module



Schematic diagram Mod. 1420C with Dallas module



Schematic diagram with option UB/2 and UPS module

## Technical Data

All specifications are typical at 25° C and rated at 10V sensor supply voltage (3V for 1420B/GP), unless otherwise specified.

	Units	Value	Note
Measurement range	±g	2	optionally: 10g
Frequency response ±3dB limit, from DC up to	Hz (min.)	> 800	> 600 @ 10g
Sensitivity at 80Hz <sup>(1)</sup>	mV/g (typ.)	500	100 @ 10g
Transverse sensitivity	±% (typ.)	< 1.5	
Non-linearity 0...2g <sup>(2)</sup>	±% (typ.)	< 0.6	
Supply voltage	V DC	3 ±5% 7...18	Model 1420B/GP Model 1420C/GP
Zero point	V DC	1.5	physical 0g
Resolution (Noise)	µg (typ.)	< 500	
Transducer current consumption	mA	< 0.7	
Zero Measurand Output <sup>(3)</sup>	±mg (typ.)	10	
Temperature drift - ZMO from 0°...70°C	±mg/K (max.)	0.4	2 at 10g
Temperature sensitivity	%/°C (max.)	0.04	
Insulation resistance <sup>(4)</sup>	MOhm (min.)	90	
Max. shock resistance (pulse-width > 2 ms)	g (max.)	10,000	
Working temperature	°C	-40...+120	short-term +140°C
Transducer mounting screws		M3	2 units
Torque moment	Nm	1.5	
Identification module: Dallas (working temperature up to 85°C)		1	other types on request <sup>(5)</sup>
Housing material		Al Alloy	grey anodized
Transducer weight	Grams	9.5	without cable and connector
Dimensions	mm	25.4 x 21.6 x 8	

(1) Sensitivity at 80 Hz, at 20 m/s<sup>2</sup> of sine amplitude

(2) Values calculated with pendulum calibration up to 2g

(3) ZMO values are valid, when accelerometer is mounted

(4) All wires to shield (GND), measured with 10V (DC)

(5) Ident module type "UPS" or "ID Module" or conversion to digital transducer with "AIM" module

**Model/Option Code:** Model 1420x/GP-RT-KT-MGT-(KT)-ST-ZT

1420x/GP: Basis article, version and application hint

-RT: Range type (measurement range): 002 = 2g, 010 = 10g

-KT: Cable type resp. cable length in cm

-MGT: ID-Module housing type

-ST: Connector type (Interface to channel collector or acquisition panel)

-ZT: Certification type (customized calibration, shock/sine calibration etc.)

### Transducer mounting on triax block:



Model N°: 070A/MB-1420

Mounting block for 3 x 1420x/GP transducer

### Dimensions in mm:

