

## Uniaxial resistive Accelerometer

**Model  
102M/CM  
102C/CM**

- **Measurement range 700g and 1000g**
- **Low transverse sensitivity**
- **Small non-linearity**
- **Frequency response 0...3000 Hz (5%)**
- **High shock resistance**
- **Repairable cable**



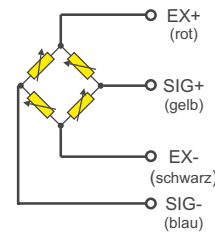
## Application

The model series 102x/CM was developed for the universal use at crash test applications, especially for operations at light vehicle component structures. The sensor is mounted by glueing it onto the measurement location.

The damped sensor element disables parasitic frequencies as well as the natural frequency of the system itself. The transducer covers a large frequency response up to 3 kHz and a small phase shift below 2° at 1 kHz.

The sensors scope a large measurement range with good linearity characteristics. Furthermore it has a large frequency bandwidth and absorbs high shock overloads. These characteristics facilitate its handling at various applications and enable its universal use.

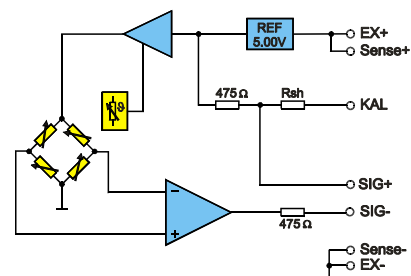
One of the specific features of this series is the repairable transducer cable.



Schematic diagram "M" version

## Functional Concept

The model series 102x/CM is based on a specific silicon sensor element with gas attenuation and integrated overload stop units. The model 102M/CM is a passive full bridge, whereas the model 102C/CM has an additional external electronic feature. This feature includes an active temperature compensation and a stabilization of the bridge voltage, which tolerates fluctuations of the supply voltage at the range of 9 to 12 V without influencing the sensitivity of the bridge. The output voltage of the measurement bridge is amplified by a precision-amplifier. The model 102C supplies an output voltage of 2 V at the range of 700 g. Model 106M is designed for about 200 mV at 1000 g.



Schematic diagram "C" version

### Options

Customized cable lengths and connectors with customer-specific pin assignment; MSC Identification Module (UPS or Dallas version); conversion to digital interface transducer with the MSC **AnalogInput Module**, selected transducers with a transverse sensitivity < 1 %, a small offset or with specific technical characteristics.

### Accessories

Pendulum calibration adapter      Article N<sup>o</sup>.:  
Sine calibration adapter              Article N<sup>o</sup>.:  
For further details please see accessories catalog

## Technical Specifications

All specifications are typical at 25° C and rated at 10 V sensor supply voltage, unless otherwise specified.)

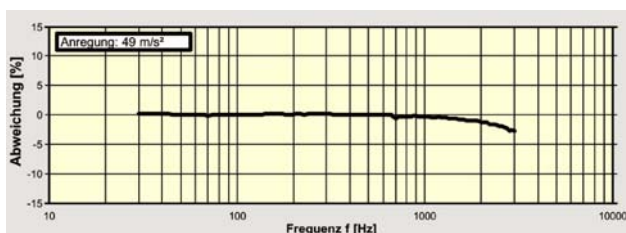
	Units	Value	Remark
Measurement range	±g	1000 700	specific for 102M specific for 102C
Frequency response ±5% limit, DC up to	Hz (min.)	3000	
Sensitivity at 80 Hz <sup>(1)</sup>	mV/g (typ)	0,2 2,8	specific for 102M specific for 102C
Supply voltage	V DC	5...12 9...12	specific for 102M specific for 102C
Sensor current consumption	mA/Kanal	2,5 7	specific for 102M specific for 102C
Attenuation <sup>(2)</sup>		0,7	
Non-linearity 0...200 g <sup>(3)</sup>	±% (typ.)	0,3	max. 1
Transverse sensitivity <sup>(4)</sup>	% (typ.)	1,5	max. 3
Zero Measurand Output <sup>(5)</sup>	±mV (typ.)	< 5	max. 25
Temperature drift - ZMO in the range of 0 ... 70° C	±mV (max.)	1 5	specific for 102M specific for 102C
Temperature drift - sensitivity in the range of 0...70° C	±% (max.)	5 1	specific for 102M specific for 102C
Bridge resistance	kOhm (typ.)	4	
Source resistance (SIG+ to SIG-)	kOhm	4 1	specific for 102M specific for 102C
Insulation resistance <sup>(6)</sup>	MOhm (min.)	90	
Max. shock resistance (pulse-width > 2 ms)	g (max.)	2000	
Max. sine load (< 2000 Hz)		50	
Warm up period	s (max.)	120	
Working temperature	°C	-20...+80	
Storage temperature		-30...+90	
Transducer fixing		glue version	
Torque moment	Nm	-	
UPS Module		optionally	
Housing material		Magnesium	
Transducer weight	Grams	2,2	without cable and additional housing

1. Sensitivity at 80 Hz, at 50 m/s<sup>2</sup> of sine amplitude
2. The damping factor will vary <10 % in range of temperature -10° C to +80° C, with regard to 25° C
3. Values calculated with pendulum calibration up to 200 g
4. Accelerometers with selected transverse sensitivity < 1 % are available with extra charge
5. ZMO values are valid, when accelerometer is mounted
6. All wires to screen (GND), measured with 10 V (DC)

### Model/Option Code: Model 102#/CM-KT-MGT-ST-ZT

- #: M = standard version, C = version with integrated electronics
- KT: Cable type resp. cable length in cm
- MGT: ID-Module type and housing type
- ST: Connector type (Interface to channel collector or acquisition panel)
- ZT: Certification Type (customized calibration, shock/sine calibration, etc.)

### Typical frequency response



Frequency response Model 102M/CM

### Dimensions and directions of action

