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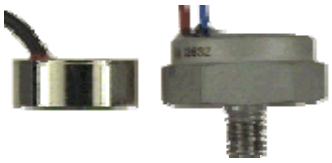
BDK3, BDK10, BDK100



Accelerometers of high overload resistance with integrated electronics for dynamic measurement of vibration and acceleration in the frequency range 1Hz to several kHz

Features

- **very high overload resistance**
- **insensitive to interference by magnetic and electric fields**
- **multiple housing options**
- **light weight**
- **linear frequency response with little or no resonant peak at upper cut-off frequency**
- **low non-linearity**
- **small lower cut-off frequency**
- **high signal-to-noise ratio**
- **hermetically sealed**
- **low transverse sensitivity**
- **high long-term stability**
- **integrated sensor electronics**
- **low output impedance**
- **long connection lines possible**

Description

The dynamic accelerometers BDK3, BDK10, and BDK100 are capacitive spring-mass accelerometers with integrated sensor electronics. Resonant peaks are minimized by dynamic gas damping in the primary transformer.
The sensor electronics require only minimal power and are in conjunction with the capacitive primary transformer characterized by low error and high long-term stability.

Application

The accelerometers BDK3, BDK10 and BDK100 are used for applications requiring high overload resistance, high long-term stability, small lower cut-off frequency, light weight and low power consumption. Typical applications include:

- measurements on vehicles, machinery, buildings and plants for process control and error diagnosis
- seismic measurements
- vibration measurements
- safety engineering
- dynamic measurement of position and velocity

Technical Specifications

Type	BDK3	BDK10	BDK100
Measuring range	±3g (ca.±30m/s^2)	±10g (ca.±100m/s^2)	±100g (ca.±1000m/s^2)
Resolution	<10^{-3}g	<$5\cdot10^{-3}$g	<$5\cdot10^{-2}$g
Frequency range	1....300Hz	1....800Hz	1....1500Hz
Sensitivity at U_b = 5Volt	appr.150mV/g	appr.60mV/g	appr.15mV/g
Temperature drift of sensitivity	<+$6\cdot10^{-2}$ % / K		
Temperature drift of zero point	<0.1mV/K		
Zero offset	(2.5±0.1)Volt - generally: 0.5Ub±4%		
Output impedance	approx. 100 Ohm		
Linearity deviation	<1%		

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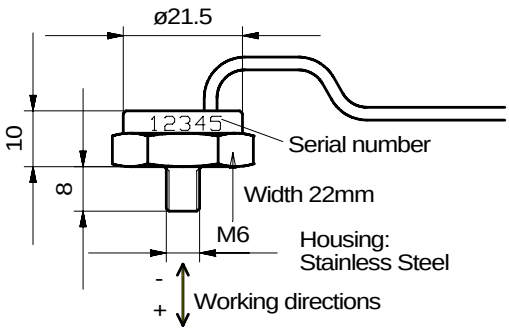
Transverse sensitivity	<1%
Mechanical overload resistance in direction of measurement	approx.10 000g (appr.100 000m/s^2) !
Nominal supply voltage (regulated)	U_{bN} = 5Volt
Permissible supply voltage range	U_{bz} = 2V ... 16V
Current drawn at U_b = 5V	approx. 2mA
Degree of protection	IP65
Operating temperature	-40°C ... +85°C
Storage temperature	-45°C ... +90°C
Weight in stainless steel housing with thread without cable	approx. 17Gramm
Weight in small housing without cable	approx. 7Gramm
Standard electrical connection	3 highly flexible, color-coded wires ø1mm length approx.18 cm (special lengths on request)
Alternative electrical connection for sensors in stainless steel housing	0.5m strong, flexible, shielded cable, 2 wires + shield, ø2.1mm (special lengths on request)

on request: Special design for very low power consumtion up to 30µA

Dimensions (in mm) and Connections

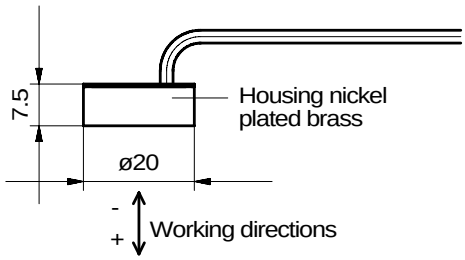


Cable connections:
red: Ub:+5V (stable)
blue: output signal
shield: GND, (-Ub)
Housing isolated from electronics

Cable or 3 wire connection

3 wire connections:
red: Ub:+5V (stable)
white: output signal
blue: GND, (-Ub)
Housing isolated from electronics

Housing type 1



3 wire connections:
red: Ub:+5V (stable)
white: output signal
blue: GND, (-Ub), housing

Housing type 2

Caution! Do not reverse operating voltage polarity!