BDK Series

General Specifications Brochure

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Compact Accelerometer: for Dynamic Measurement of Acceleration or Vibration in Frequency Ranges 1Hz to 1.5kHz.

Description

BDK sensors are dynamic accelerometers that are capacitive spring-mass based, with incorporated sensor electronics. Resonance peaks are minimised by means of a special gas-dynamic damping in the primary transformer. With very low power consumption, these sensors are characterised by very low drift (or error) and long-term stability.

Applications

These accelerometers are used for applications requiring high overload tolerance, 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 & velocity

Features

- *Compact housing, less than 1" diameter*
- *Light weight*
- *Very high overload resistance*
- *Insensitive to interference by magnetic and electric fields*
- *Low cut-off frequency*
- *Linear frequency response with little or no resonant peak at upper cut-off frequency*
- *Low non-linearity*
- *High signal-to-noise ratio*
- *Very low cross-axis sensitivity*
- *Hermetically sealed*
- *High long-term stability*
- *Small temperature drift*
- *Integrated sensor electronics*
- *Long connection leads available*
- *Multiple housing options*

MECHANICAL CHARACTERISTICS		
Housing	*Type 1*	Stainless Steel, M6 Mounting Stud
	Type 2	Nickel Plated Brass
Dimensions	*Type 1*	Ø 0.87" (Ø 22mm) X 0.39" (10mm) h
	Type 2	Ø 0.80" (Ø 20mm) X 0.30" (7,5mm) h
Weight	*Type 1*	Approx. 0.60 ounces (17 grams)
	Type 2	Approx. 0.25 ounces (7 grams)
Protection Degree		IP65
Mounting		See "Figure 1"
Mounting Plane		See "Figure 1"
Electrical Connection	*Standard*	3 highly flexible, color-coded wires Ø 0.04" (Ø 1.0mm) x 7.0" (18cm)
	Optional	Type 1 Housing: Shielded cable Ø 0.083" (Ø 2.1mm) x 1.65' (0.5m)
Operating Temperature		-40°F to +185°F (-40° to +85°C)
Storage temperature		-49°F to +194°F (-45° to +90°C)

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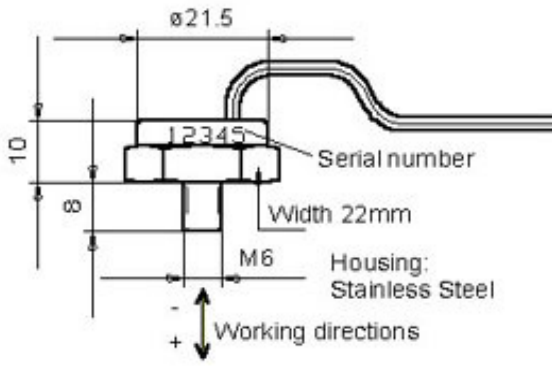
MODEL	BDK3	BDK10	BDK100
Measuring Range	±3g (Approx. ±30m/s^2)	±10g (Approx. ±100m/s^2)	±100g (Approx. ±1000m/s^2)
Resolution	<10^{-3}g	<5*10^{-3}g	<5*10^{-2}g
Frequency Range	1...300Hz	1...800Hz	1...1500Hz
Max. Non-linearity	<0.5%		
Cross Axis Sensitivity	<1%		
Mechanical Overloading in Measuring Direction	10,000g (Approx. 100,000m/s^2)		
Power Supply U_{bN} (Regulated)	5 Volt		
Min ... Max. Supply U_{bz}	2 ... 16 Volt		
Current Consumption U_b=5Volt	BD: Approx. 250uA (optional 30uA), BDK: Approx. 2mA		
ANALOG VOLTAGE OUTPUT MODEL AT U_{BN}=5VOLT			
Sensitivity	Approx. 150mV/g	Approx. 60mV/g	Approx. 10mV/g
Temperature Drift of Sensitivity	< +0.06%/°C		
Temperature Drift of Zero	< 0.1mV/°C		
Zero Offset at Ub=5V	2.5 ±0.1 Volt - generally: 0.5Ub ± 4%		
Output Impedance	100 Ohm		
Digital pulse-width modulated output signal - linear to the degree of angle - available upon request.			

CABLE WIRING TABLE:			
3-WIRE (standard)		**SHIELDED CABLE** (optional for Housing Type 1)	
RED	+5VDC Stable	**RED**	+5VDC Stable
WHITE	Output Signal	**BLUE**	Output Signal
BLUE	GND (housing)	**SHIELD**	GND (housing)

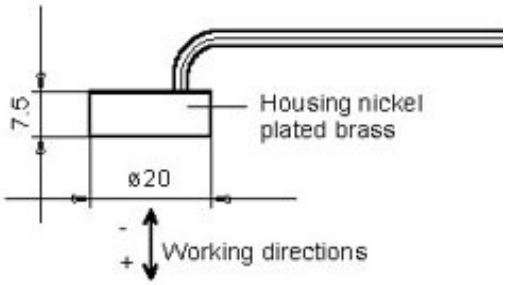
ATTENTION! Do not reverse voltage operating polarity!

Figure 1: **Dimensions and Mounting Position ([mm])**

Housing type 1



Housing type 2



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