

Discom Sensors

Discom offers sensors for industrial applications and end-of-line tests. The sensors are engineered to increase quality and productivity at our customer's production environment. Our portfolio comprises structure-borne (contact) as well as airborne noise sensors (contactless).

Discom Structure-borne noise Sensor Sets



- ✓ Configurable sensor sets consisting of wide range of accelerometers combined with different types of elastic elements enable optimal solution for industrial testing
- ✓ Robust, high quality, wide bandwidth, low noise piezo accelerometers for structure-borne noise measurement
- ✓ Elastic elements to mechanically and electrically decouple mounting and accelerometer

Discom offers a variety of structure-borne noise sensors, consisting of piezo accelerometers and elastic elements as mounting adapters.

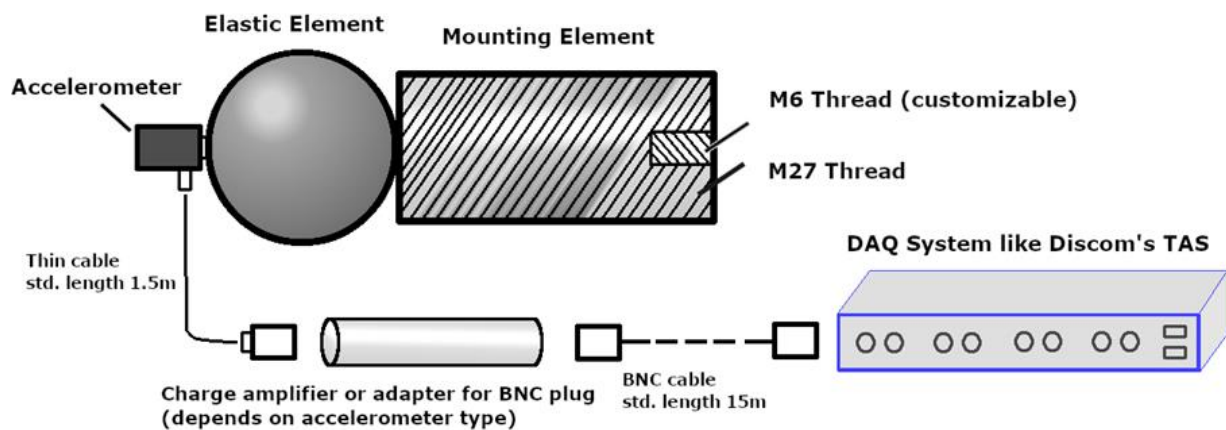
- small and light accelerometers, resulting in broad frequency bandwidth
- elastic elements for mounting prevent resonance with machinery
- electrical isolation from device under test
- accelerometer and elastic element combinations offer a wide range of industrial measurement solutions
- piezo accelerometers available as IEPE (also known as ICP® or CCLD®) and charge versions

What is a Discom Sensor Set?

A Discom Sensor set is a combination of at least 3 main components:

Components	
ACCELEROMETER Nomenclature E = IEPE (ICP® , CCLD®) accelerometer D = Charge accelerometer (requires an external signal conditioner. Discom ICA10® pre-amplifier is recommended) TRIAX = Triaxial accelerometer	
ELASTIC ELEMENT (FE) Nomenclature HD = Elastic element with higher shore hardness	
SENSOR CABLE	

Typical Installation



Available Sensor sets

BKS23 Sensor Sets:

Application:

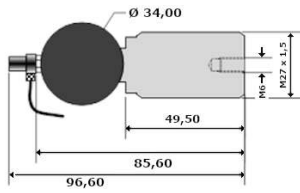
Cable routing through elastic element keeps the cable safer than at the BKS03 Sensor Sets. The BKS23 Sensor Sets includes a more robust and shorter sensor cable. Cable routing options: axial or sideways. Standard add-on: stabilization ring.



BKS23 Sensor Sets:	
BKS23-D [P/N: 05133] Scope of delivery: -BKS23 FE [P/N 05131] -Load Accelerometer KS91D1 [P/N 02617] -Sensor cable 0,4m [P/N 05130] External ICP preamplifier required	
BKS23-E [P/N: 05132] Scope of delivery: -BKS23 FE [P/N 05131] -Accelerometer KS91E1 [P/N 02618] -Sensor cable 0,4m [P/N 05130]	
BKS23-E100 [P/N: 05146] Scope of delivery: -BKS23 FE [P/N 05131] -Accelerometer B&K 4518-003 [P/N 04650] -Sensor cable 1.5m [P/N 04787]	

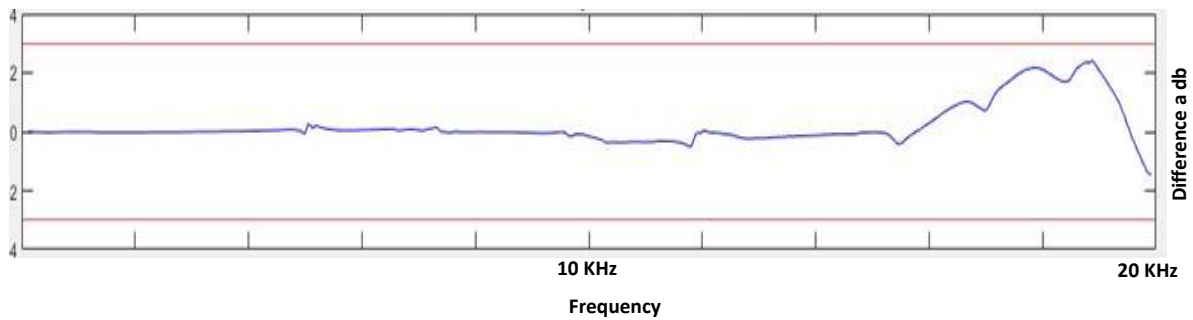
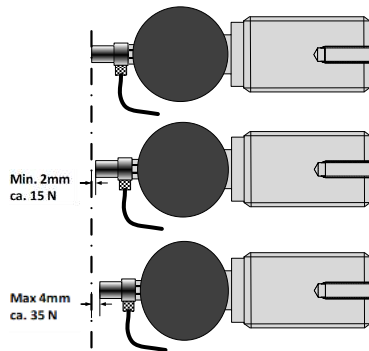
BKS03 Sensor Sets:

Dimensions:

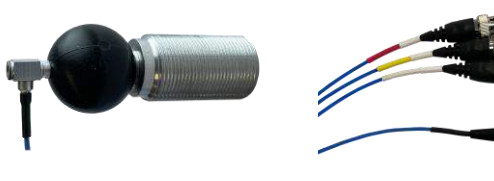


Application:

Can be applied to slightly rounded or tilted surfaces. Max. deviation from vertical direction: 5° . Smooth (finished) surfaces recommended. Press in by 2 to 4 mm (press-on force 15 – 35 N). Recommended pressure: 3mm displacement (25 N)

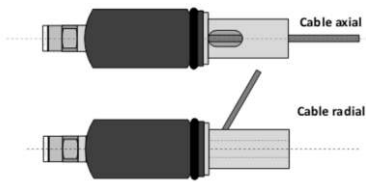


Transfer function for BKS03-D, 3mm compression, 0° angle tilting, stainless steel surface

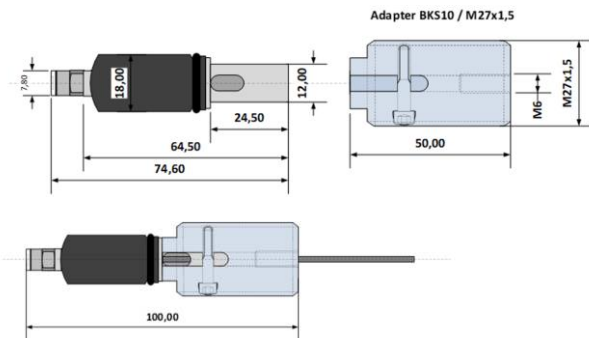
BKS03 Sensor Sets:	
BKS03-D [P/N: 02682] <i>scope of delivery:</i> -BKS03FE elastic element [P/N: 01716] -KS91D accelerometer, sensitivity 2.7 pC/g, range: +-4000g [P/N: 01021] -Sensor cable 1.5 m [P/N:02619]	
BKS03-E [P/N: 02681] <i>scope of delivery:</i> -BKS03-FE elastic element [P/N: 01716] -KS91E accelerometer, accelerometer sensitivity: 10mV/g; range: +-600g [P/N: 01018] -Sensor cable 1.5 m [P/N: 02619] -UNF10-32 / BNC adapter [P/N: 00281]	
BKS03-E100 [P/N: 02916] Built-in IEPE amplifier. Sensitivity approx. 100 mV/g. Scope of delivery: -BKS03 FE [P/N: 01716] -Accelerometer B&K4519-001 [P/N: 03143] -Sensor cable B&K 3m [P/N: 02347]	
BKS03-TRIAX Sensorset [P/N: 04728] <i>scope of delivery:</i> -BKS03-FE elastic element [P/N: 01716] -PCB-356A03/NC Accelerometer Triaxial sensitivity: 10mV/g; range: +-500g, Integral cable: 1,5m, 4Pin, glued in special housing for adaptation to BKS03 [P/N: 04639] -PCB-034G10 sensorcable 3m, 4Pin/3xBNC [P/N: 02840]	

BKS10HD Sensor Sets:

Cable Routing:

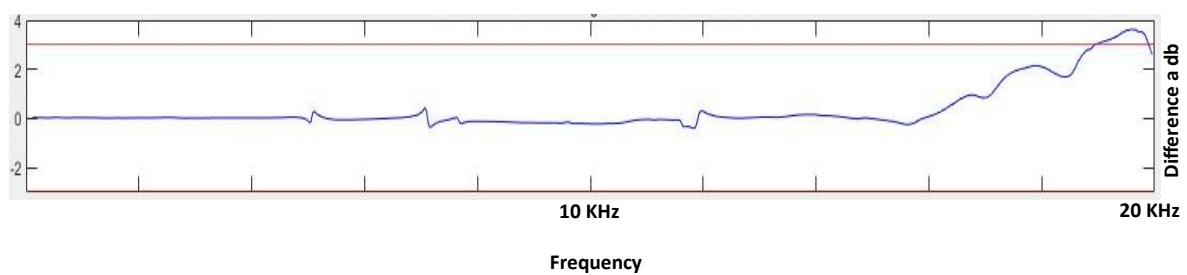
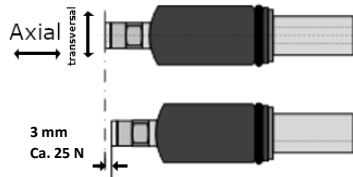


Dimensions:



Application:

For tight spaces. To be applied to flat surfaces. Max. deviation from vertical direction: 1° . Smooth (finished) surfaces required. Cable is protected inside of elastic element. Press-on specification for BKS10HD (blue) 3 mm = 25 N.



Transfer function for BKS10HD-E, 3mm compression, 0° angle tilting, stainless steel surface



BKS10 Sensor Sets:	
BKS10HD-D [P/N: 04945] <i>scope of delivery:</i> -BKS10-FE HD elastic element [P/N: 03340] -KS91D1 accelerometer, sensitivity 2.7 pC/g, range: +-4000g [P/N: 02617] -Sensor cable 1.5 m [P/N: 02619]	
BKS10HD-E [P/N: 04954] <i>scope of delivery:</i> -BKS10-FE HD elastic element [P/N: 03340] -KS91E1 accelerometer, sensitivity: 10mV/g; range: +-700g [P/N: 02618] -Sensor cable 1.5 m [P/N: 02619]	
BKS10HD-TRIAX Sensorset [P/N: 04729] <i>scope of delivery:</i> -BKS10-TRIAX FE elastic element [P/N: 03345] -PCB-356A32 accelerometer triaxial sensitivity: 100mV/g; range: +-50g; 1-4000Hz; modified for BKS10 Triax [P/N: 03335] -PCB-034K10 sensorcable 3m, 4Pin / 3xBNC [P/N: 03334]	

Magnetic Sensor Sets:

The magnetic accelerometer MVS18 was developed for use on movable test objects. It can be used wherever automatic infeed of a BKS03/10 sensor is not possible. It can also be used for testing prototypes and small series. To do this the MVS18 is manually placed on a suitable magnetic surface of the test specimen. In the case of pure aluminium assemblies, the housing screws can be used for mounting.

MVS18 Sensor Sets:	
MVS18-E [P/N: 03768] <i>scope of delivery:</i> -3x MVS18-FE -KS91E3-MVS Accelerometer [P/N: 04037] -MVS18 Cable 1,5m [P/N : 04246]	

Combination Matrix

The following table shows the available combinations of accelerometer and elastic element for mounting.

Note that some combinations are not available as Discom Sensor Set. User is responsible for assembling the parts together.

		Elastic Element				
		BKS03-FE [P/N: 01716]	BKS10-FE-HD [P/N: 03340]	BKS10HD Triax FE [P/N: 03345]	MVS18-FE	BKS23-FE [P/N: 5131]
Accelerometer	KS91E [P/N: 01018] cable radial IEPE, 10mV/g	✓				
	KS91E1 [P/N: 02618] cable <i>axial</i> IEPE, 10mV/g		✓			✓
	KS91E3 [P/N: 04739] cable <i>axial</i> , special thread IEPE, 10mV/g				✓	
	KS91F1 [P/N: 03130] cable <i>axial</i> IEPE, 25mV/g		✓			
	KS91D [P/N: 01021] cable radial Charge, 2.5pC/g	✓				
	KS91D1 [P/N: 02617] cable <i>axial</i> Charge, 2.5pC/g		✓			✓
	B&K 4519-001 [P/N: 03143] cable radial IEPE, 100mV/g	✓				
	PCB 356A32 [P/N: 03335] cable <i>axial</i> , 4-pin connector Triax IEPE, 100mV/g			✓		
	PCB 356A03 [P/N: 04639] cable <i>axial</i> , 4-pin connector Triax IEPE, 10mV/g	✓				

Other accelerometer/ mounting options are available on demand!

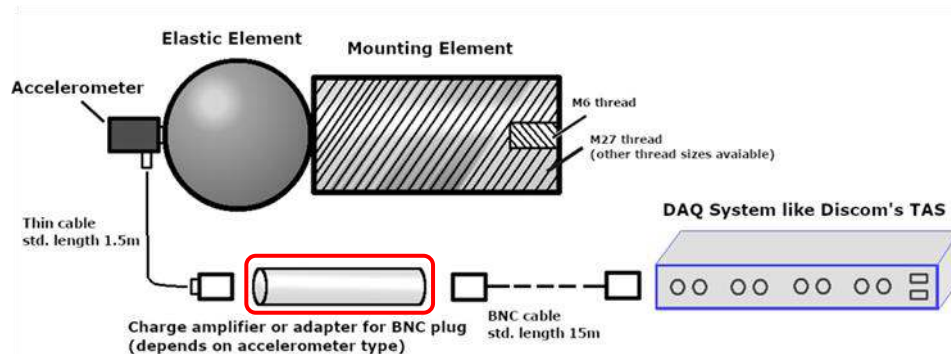


Accelerometers D-Type

The D-Type accelerometers have a charge output and require additional signal conditioning with a charge-to-IEPE preamplifier.

KS91D, KS91D1 – Basic Specifications		
Sensor Type	charge accelerometer with electrically isolated stainless steel ring	charge-to-IEPE preamplifier needed to connect to TAD input – Discom offers according preamplifiers ¹
Piezo Design	shear design	
Sensitivity	2.5pC/g $\pm 10\%$	
Range ¹	$\pm 4000g$ (peak)	
Linear Frequency Range	$\pm 3dB$ $\pm 10\%$ $\pm 5\%$	0.05 Hz .. 23 kHz 0.1 Hz .. 18 kHz 0.15 Hz .. 15 kHz
Ceramic / Piezo Capacitance	250pF $\pm 10\%$	
Operating Temperature	-40°C .. +150°C	
Connector	M3, female	
Mechanical		
Dimensions ($\varnothing$ / h)	KS91D: 7.8mm / 11.6mm KS91D1: 7.8mm / 15.5mm	
Weight	KS91D: 1.8g KS91D1: 1.85g	without cable

Pre-Amplifiers



¹ Range with various Pre-Amplifiers		
Pre-Amplifier	Charge Conversion [mV/pC]	Range [pC]
Discom ICA10	10	± 500
Discom ICA1-LP	1	± 5000

Accelerometers

Accelerometers E-Type

The E-types are Discom's standard IEPE-compatible accelerometers.

KS91E, KS91E1, KS91E3 – Basic Specifications			
Sensor Type	IEPE-subminiature accelerometer with ring-shaped probe		compatible with all of Discom's TAD inputs
Piezo Design	shear design		
Sensitivity	10mV/g $\pm 10\%$		
Range	$\pm 600g$ (peak)		
Linear Frequency Range	$\pm 3dB$	0.3 Hz .. 23 kHz	
	$\pm 10\%$	0.6 Hz .. 18 kHz	
	$\pm 5\%$	0.9 Hz .. 15 kHz	
Operating Temperature	$-40^{\circ}C$.. $+120^{\circ}C$		
Connector	M3, female		
Mechanical			
Dimensions ($\varnothing$ / h)	KS91E: 7.8mm / 11.6mm KS91E1: 7.8mm / 15.5mm KS91E3: 7.8mm / 16.4mm		
Weight	KS91E: 1.6g KS91E1: 1.65g KS91E3: 1.65g		without cable

Accelerometers F-Type

The F-types are IEPE accelerometers with high sensitivity.

The KS91F2's main sensitivity is in transverse direction.

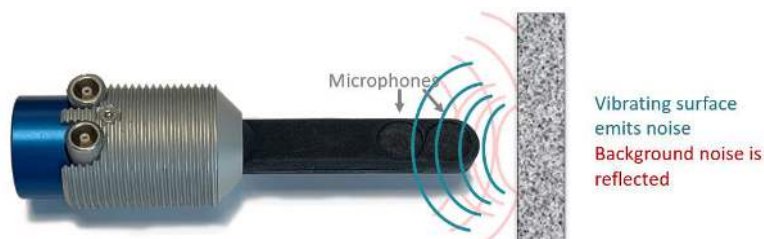
KS91F1, KS91F2 – Basic Specifications			
Sensor Type	IEPE accelerometer with ring-shaped, insulated probe made of stainless steel		compatible with all of Discom's TAD inputs
Piezo Design	shear design		
Sensitivity	25mV/g $\pm 20\%$		
Range	$\pm 240g$ (peak)		
Linear Frequency Range KS91F1	$\pm 3dB$ $\pm 10\%$ $\pm 5\%$	0.3 Hz .. 30 kHz 0.6 Hz .. 18 kHz 0.9 Hz .. 15 kHz	
Linear Frequency Range KS91F2	$\pm 3dB$ $\pm 10\%$ $\pm 5\%$	0.6 Hz .. 12.5 kHz 1.1 Hz .. 8.0 kHz 1.5 Hz .. 6.8 kHz	
Operating Temperature	$-30^{\circ}C$.. $+120^{\circ}C$		
Connector	M3, female		
Mechanical			
Dimensions ($\varnothing$ / h)	KS91F1: 7.8mm / 15.5mm KS91F2: 8.5mm / 16.0mm		
Weight	KS91F1: 1.65g KS91F2: 2.6g		without cable

Air-borne noise sensors

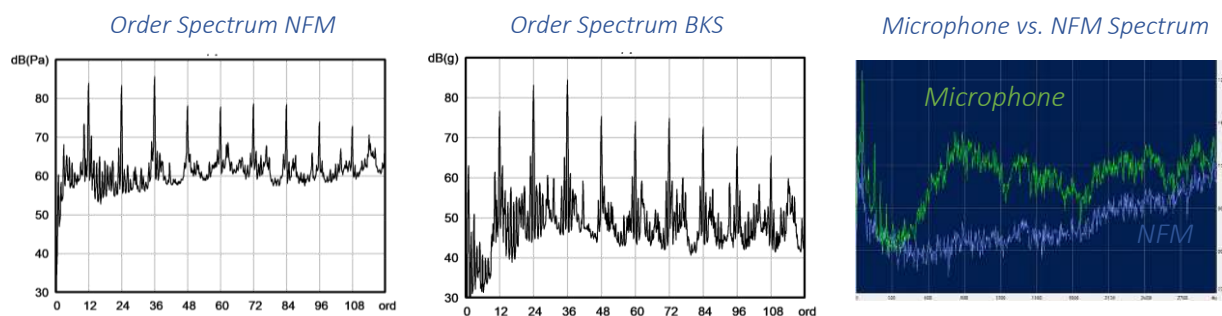
Discom BKS sensors are the number one choice for applying accelerometers in automotive production testing. But some applications require a contactless vibration measurement.

Near Field Microphone (NFM19):

Discom NFM is designed as a substitute to BKS sensors for contactless measurement. NFM works for rounded surfaces and similar positions which do not allow pressing on a BKS. By calculating the difference signal from two microphones, background noise can be attenuated by up to 20 dB in the most relevant frequency range.



The Discom NFM is designed for a frequency range from 600 Hz to 15 kHz, covering the typical gear mesh and e-motor frequencies relevant for acoustical quality and defect detection.



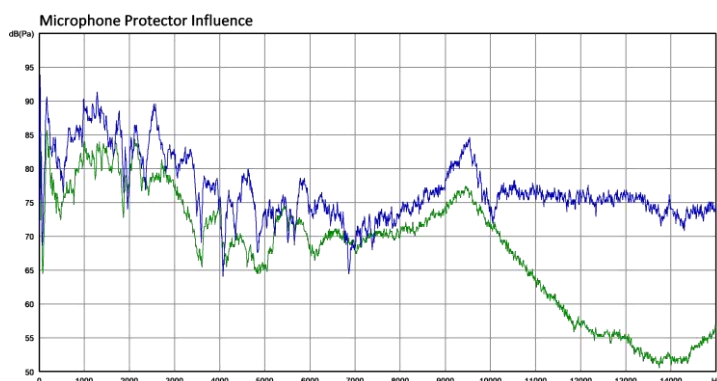
NFM19:	
NFM19-axial [P/N: 04807] Scope of delivery: -RG174 Lemo Coax/BNC cable length: 1,5m [Art.: 04246]	
NFM19-radial [P/N: 04902] Scope of delivery: -RG174 Lemo Coax/BNC cable length: 1,5m [Art.: 04246]	

Discom Robust Microphone (DRM58)



Application:

Designed for classical microphone measurements in harsh environments. Uses Brüel&Kjær microphone type 4958. Protected against water, oil and other liquids, against wind, and against physical hitting. Standard Discom fixture with M27 outer thread and M8 inner thread. Cable can be routed sideways or axial.



Microphone protector MP21 influences the signal mainly above 10 kHz. Resonances can be attenuated by digital filters

DRM58	
Discom Robust Microphone [P/N: 05147] Scope of delivery: - Microphone B&K Type 4958-A [P/N 02566] - Discom Shield and Spring Element [P/N 05143]	