PRÜFTECHNIK

Sensors, cables and accessories

Catalog

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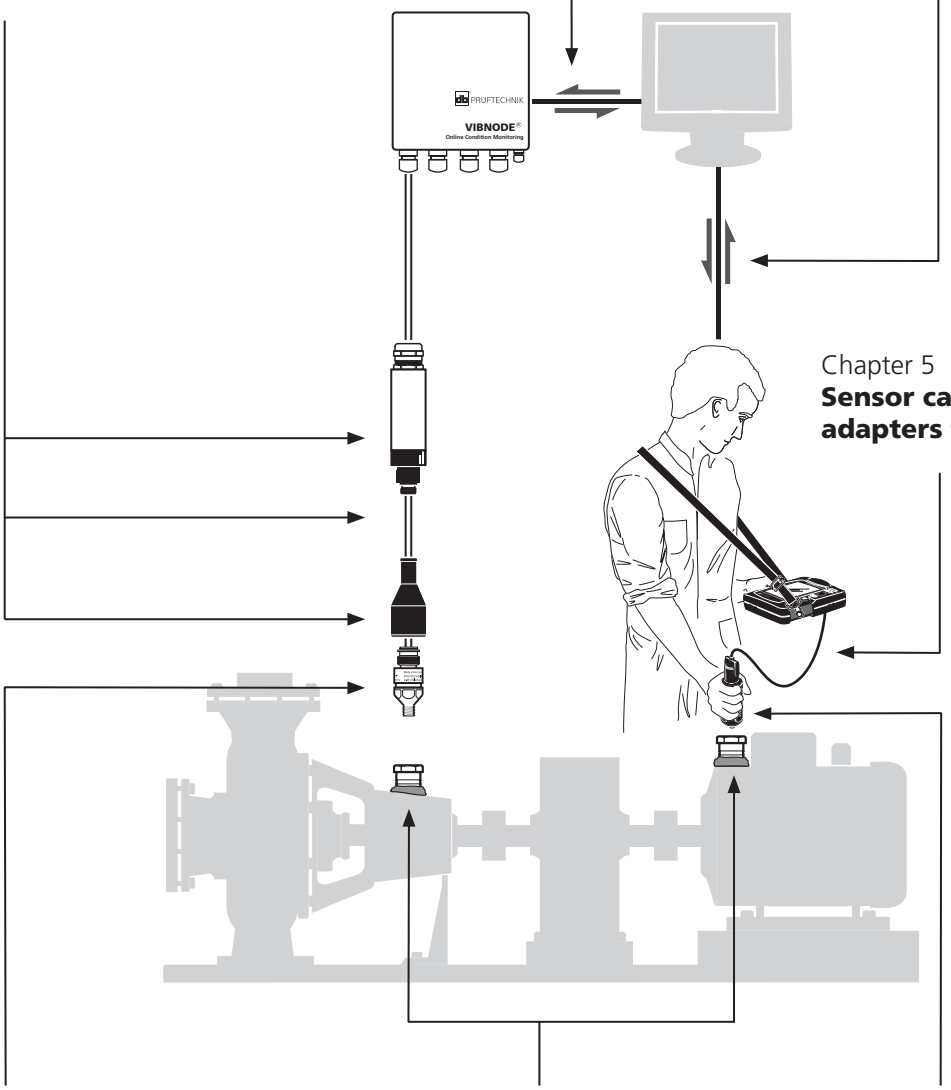
Chapter overview

For reasons of clarity, the products in this catalog are organized into chapters, which are based on their location and application on-site.

Basically this categorization depends on whether the product can be assigned to the permanently installed online systems or to the portable instruments.

The overview below shows the appropriate division of the chapters.



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Sensor cables and connection adapters for mobile data collectors

Chapter 1
Sensors for permanent installation

Chapter 3
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Chapter 2
Sensors for mobile data collection

Chapter contents, organized by location and application

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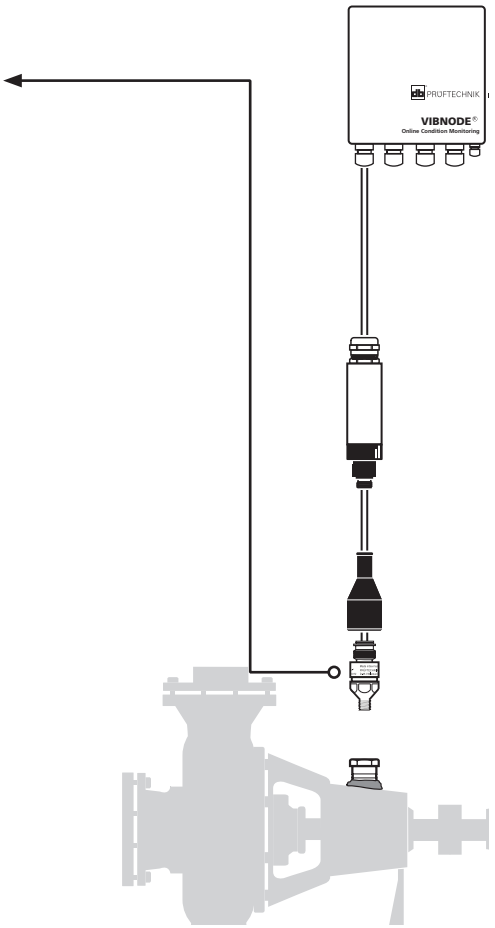
Sensors for permanent installation



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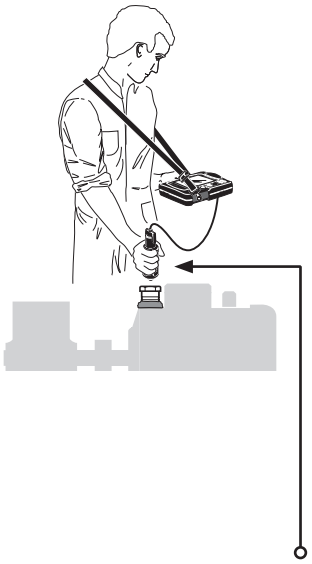
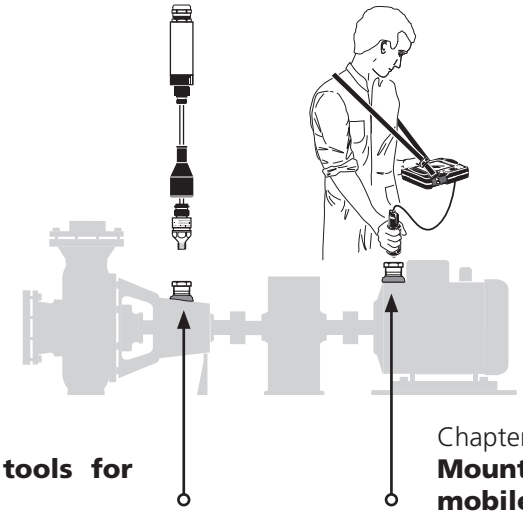


Chapter 2
Sensors for mobile data collection

Chapter contents, organized by location and application



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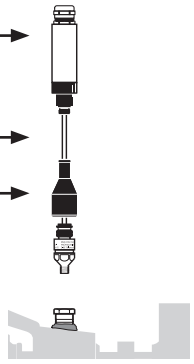

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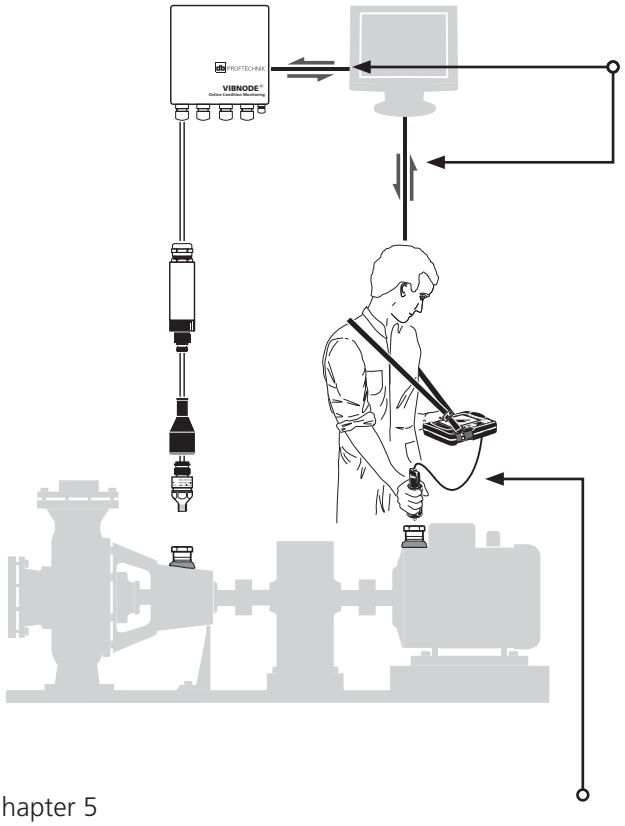

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Chapter 1
Sensors for permanent installation

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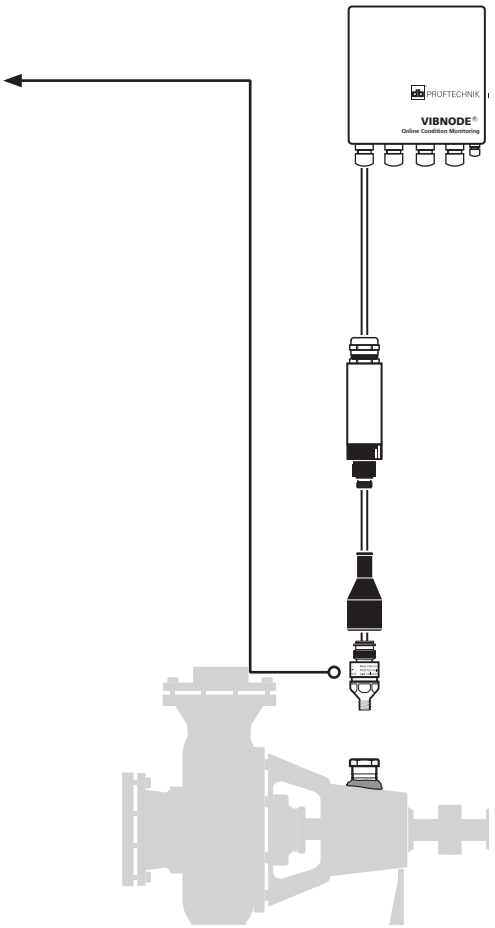

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Industrial accelerometers for standard machinery (n > 60 min^{-1})

VIB 6.102 R : Industrial accelerometer for standard machinery, adhesive mount
VIB 6.122 R : Industrial accelerometer for standard machinery, M8 thread mount
VIB 6.132 R : Industrial accelerometer for standard machinery, UNC 5/16 thread mount
VIB 6.125 R : Industrial accelerometer for standard machinery, M8 thread mount, high-temperature version
VIB 6.135 R : Industrial accelerometer for standard machinery, UNC 5/16 thread mount, high-temperature version

Adhesive mount

Thread mount

Vibration acceleration

Bearing condition

Pump cavitation

Application

These accelerometers are suitable for vibration measurements up to 20 kHz on machinery with rotational speeds above 60 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The accelerometers are mainly used for continuous machine condition monitoring in an industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
VIB 3.475 Screwed adapter to M20
VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12
VIB 3.431 -, w/ adhesive mount

Mounting adapters for UNC 5/16 screw threads:
VIB 3.414 Screwed ad. w/ locking nut to UNC 5/16
VIB 3.415 -, w/ locking nut to UNC 3/8 - 16
VIB 3.416 -, w/ locking nut to UNC 1/2 - 13
VIB 3.432 -, w/ adhesive mount

Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm

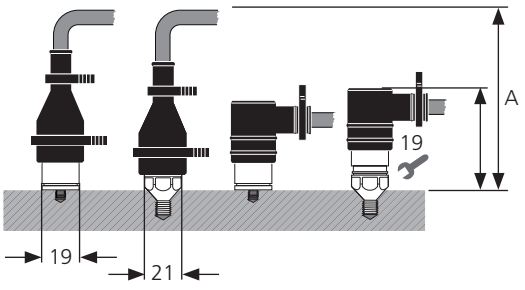
Extension post for UNC 5/16 screw threads:
VIB 8.590 length: 2 1/8“
VIB 8.591 length: 3 3/4“
VIB 8.592* length: 6 5/8“
* only for shock pulse measurements!

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

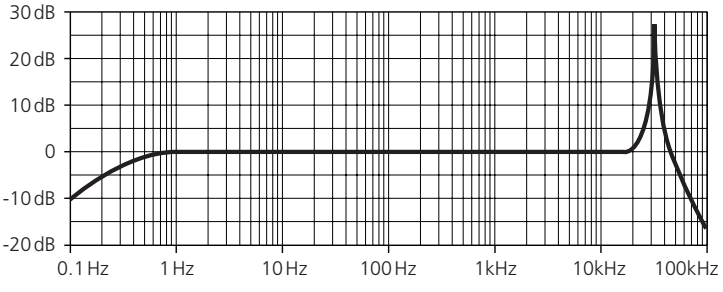
Technical data

PARAMETER		VIB 6.102 R	VIB 6.122 R	VIB 6.132 R	VIB 6.125 R	VIB 6.135 R
Measurement	Signaling system	Current LineDrive, 3.5 mA closed current with superposed AC signal				
	Transmission factor ± 3%	1.0 µA/ms^{-2} (Reference: 159 Hz; 25 °C)				
	Frequency range ± 5%	2 Hz ... 8 kHz				
	± 10%	1 Hz ... 12 kHz				
	± 3dB	1 Hz ... 20 kHz				
	Resonance frequency	36 kHz				
	Linearity range ± 10%	± 961 ms^{-2}				
	Temperature range, w/ Rayolin cable	-30 °C ... +80 °C	-30 °C ... +100 °C		-30 °C ... +125 °C	
	w/ Teflon cable	not available			-30 °C ... +135 °C (short-term up to +150 °C)	
Electrical	Power requirement	> 10 mA / 7-18 VDC				
	Transverse sensitivity	< 5% at 10 kHz				
	Temperature sensitivity	< 0.05 ms^{-2}/K				
	Magnetic sensitivity	< 5 ms^{-2}/T (at 50 Hz)				
	Base strain sensitivity	< 0.1 ms^{-2}/µm/m				
	Electrical noise, rms	< 0.01 ms^{-2} from 2 Hz				
	Output impedance	> 1 MOhm				
	Insulation	> 10^{9} MOhm				
Mechanical	Case material	Stainless steel VA 1.4305				
	Environmental protection	IP 65 (w/ cable)				
	Cable connection	TNC socket				
	Shock limit	< 250 kms^{-2}				
	Weight	40 g				
	Installation height A (see below)					
	w/ coaxial cable & straight TNC plug	> 119 mm	> 115 mm			
	... and angled TNC plug	59 mm	55 mm			
	Mounting	Adhesive	M8 thread	UNC 5/16 thread	M8 thread	UNC 5/16 thread

Dimensions
in mm



Frequency response



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Industrial accelerometers for low-speed machinery (n > 20 min^{-1})

VIB 6.107 :	Industrial accelerometer for low-speed machinery, adhesive mount
VIB 6.127 :	Industrial accelerometer for low-speed machinery, M8 thread mount
VIB 6.137 :	Industrial accelerometer for low-speed machinery, UNC 5/16 thread mount

Adhesive mount

Thread mount

Vibration acceleration

Application

These accelerometers are suitable for vibration measurements up to 10 kHz on low-speed machinery with rotational speeds above 20 min^{-1}. High frequency shock pulse measurements for bearing condition evaluation and pump cavitation are not possible with this series.

The accelerometers are mainly used for continuous machine condition monitoring in an industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
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VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12
VIB 3.431 -, w/ adhesive mount

Mounting adapters for UNC 5/16 screw threads:
VIB 3.414 Screwed ad. w/ locking nut to UNC 5/16
VIB 3.415 -, w/ locking nut to UNC 3/8 - 16
VIB 3.416 -, w/ locking nut to UNC 1/2 - 13
VIB 3.432 -, w/ adhesive mount

Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm

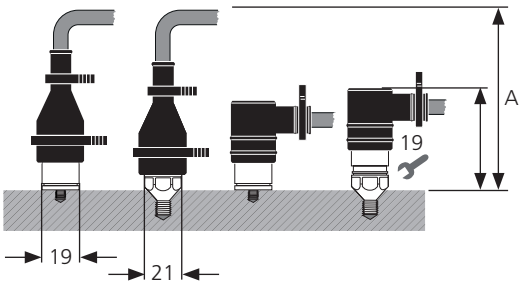
Extension post for UNC 5/16 screw threads:
VIB 8.590 length: 2 1/8“
VIB 8.591 length: 3 3/4“
VIB 8.592* length: 6 5/8“
* only for shock pulse measurements!

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

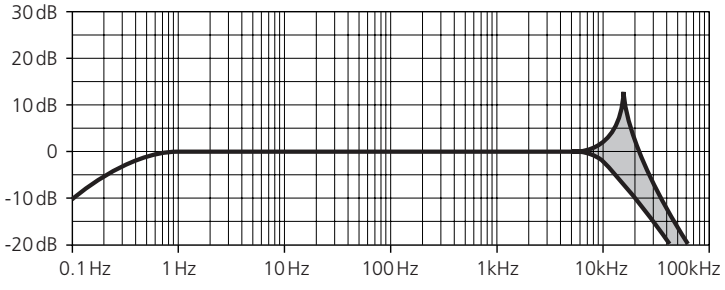
Technical data

PARAMETER		VIB 6.107	VIB 6.127	VIB 6.137
Measurement	Signaling system	Current LineDrive, 3.5 mA closed current with superposed AC signal		
	Transmission factor ± 4%	5.35 µA/ms^{-2} (Reference: 159 Hz; 25 °C)		
	Frequency range ± 5%	2 Hz ... 4 kHz		
	± 10%	1 Hz ... 6 kHz		
	± 3dB	0.3 Hz ... 10 kHz		
	Resonance frequency	17 kHz; > 20 dB damped		
	Linearity range ± 10%	± 450 ms^{-2}		
	Temperature range, w/ Rayolin cable	-30 °C ... +80 °C	-30 °C ... +100 °C	
Electrical	Power requirement	> 10 mA / 7-18 VDC		
	Transverse sensitivity	< 5% at 10 kHz		
	Temperature sensitivity	< 0.01 ms^{-2}/K		
	Magnetic sensitivity	< 1 ms^{-2}/T (at 50 Hz)		
	Base strain sensitivity	< 0.1 ms^{-2}/µm/m		
	Electrical noise, rms	< 0.002 ms^{-2} from 2 Hz		
	Output impedance	> 300 kOhm		
	Insulation	> 10^{9} MOhm		
Mechanical	Case material	Stainless steel VA 1.4305		
	Environmental protection	IP 65 (w/ cable)		
	Cable connection	TNC socket		
	Shock limit	< 50 kms^{-2}		
	Weight	41 g	43 g	
	Installation height A (see below)			
	w/ coaxial cable & straight TNC plug	> 124 mm	> 120 mm	
	... and angled TNC plug	64 mm	60 mm	
	Mounting	Adhesive	M8 thread	UNC 5/16 thread

Dimensions
in mm



Frequency response



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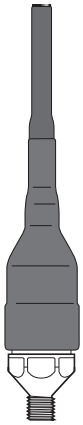
Industrial accelerometers for use in liquid media (IP 68)

VIB 6.125 RIP :	Industrial accelerometer for standard machinery (n > 60 min^{-1})
VIB 6.125 IDEX :	Industrial accelerometer for standard machinery (n > 60 min^{-1}), intrinsically safe
VIB 6.129 IP :	Industrial accelerometer for low-speed machinery (n > 20 min^{-1})
VIB 6.129 IDEX :	Industrial accelerometer for low-speed machinery (n > 20 min^{-1}), intrinsically safe

Thread mount



Accelerometer w/ IP 68 option

Vibration acceleration

Bearing condition

Pump cavitation

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IP 68 (Option)

Application

These accelerometers are suitable for vibration measurements on rotating machinery. The accelerometer series VIB 6.125 can additionally be used for for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

In combination with the IP 68 option the accelerometers can be used under water and in hot and chemical aggressive fluids. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

The accelerometer of the series VIB 6.125 IDEX and VIB 6.129 IDEX are gas and dust explosion-proof. They are suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C. The maximum ambient temperature is 80°C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.125 IDEX and VIB 6.129 IDEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
VIB 3.475 Screwed adapter to M20
VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12

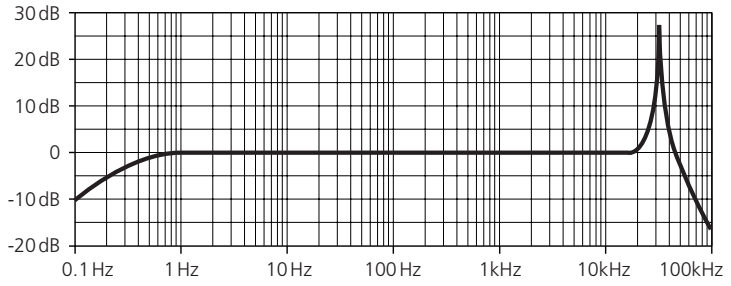
Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm
* only for shock pulse measurements!

IP 68 option for use in liquid media:
VIB 6.760 IP 68 option, oil-resistant, long version
VIB 6.761 IP 68 option, oil-resistant, short version

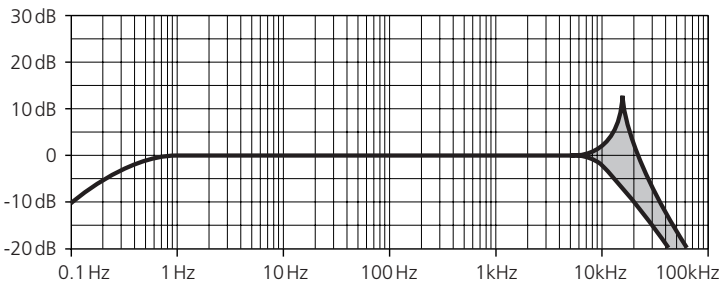
Technical data

PARAMETER		VIB 6.125 RIP	VIB 6.125 IDEX	VIB 6.129 IP	VIB 6.129 IDEX
Measurement	Signaling system	Current LineDrive, 3.5 mA closed current with superposed AC signal			
	Transmission factor	1,0 µA/ms^{-2} (Reference: 159 Hz; 25 °C) ± 3%		5.35 µA/ms^{-2} (Reference: 159 Hz; 25 °C) ± 4%	
	Frequency range ± 5%	2 Hz ... 8 kHz		2 Hz ... 4 kHz	
	± 10%	1 Hz ... 12 kHz		1 Hz ... 6 kHz	
	± 3dB	1 Hz ... 20 kHz		0.3 Hz ... 10 kHz	
	Resonance frequency	36 kHz		17 kHz; > 20 dB damped	
	Linearity range ± 10%	± 961 ms^{-2}		± 450 ms^{-2}	
	Temperature range, w/ Rayolin cable	-30 °C ... +125 °C	--	-30 °C ... +125 °C	--
	w/ PVC cable	--	-30 °C ... +80 °C	--	-30 °C ... +80 °C
	w/ Teflon cable	-30 °C ... +135 °C	--	-30 °C ... +135 °C	--
Electrical	Power requirement	> 10 mA / 7-18 VDC			
	Transverse sensitivity	< 5% at 10 kHz			
	Temperature sensitivity	< 0.05 ms^{-2}/K		< 0.01 ms^{-2}/K	
	Magnetic sensitivity	< 5 ms^{-2}/T (at 50 Hz)		< 1 ms^{-2}/T (at 50 Hz)	
	Base strain sensitivity	< 0.1 ms^{-2}/µm/m			
	Electrical noise, rms	< 0.01 ms^{-2} from 2 Hz		< 0.002 ms^{-2} from 2 Hz	
	Output impedance	> 1 MOhm		> 300 kOhm	
	Insulation	> 10^9 MOhm			
Mechanical	Case material	Stainless steel VA 1.4571, chemical resistant			
	Environmental protection	IP 65 w/ cable, IP 68 w/ option VIB 6.760 / VIB 6.761			
	Cable connection	TNC socket			
	Shock limit	< 250 kms^{-2}		< 50 kms^{-2}	
	Weight	40 g		43 g	
	Installation height, w/ IP 68 option VIB 6.760	> 140 mm			
	Installation height, w/ IP 68 option VIB 6.761	> 120 mm			
	Mounting	M8 thread			
EX	Marking, gas explosion protection	--	Ex II 2 G Ex ib IIC T4	--	Ex II 2 G Ex ib IIC T4
	Marking, dust explosion protection	--	Ex II 2 D Ex ib IIIB $T_5$187°C	--	Ex II 2 D Ex ib IIIB $T_5$187°C

Frequency response
VIB 6.125 RIP
VIB 6.125 IDEX



Frequency response
VIB 6.129 IP
VIB 6.129 IDEX



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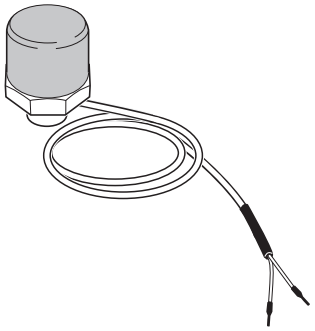
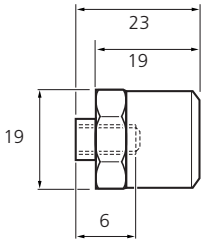
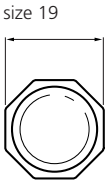
Mini accelerometers

VIB 6.202-3: Mini accelerometer with RG 174 cable, 3 meters
VIB 6.202-6: Mini accelerometer with RG 174 cable, 6 meters
VIB 6.203-3: Mini accelerometer with Spec 44 cable, 3 meters
VIB 6.203-6: Mini accelerometer with Spec 44 cable, 6 meters





Dimensions in mm



Vibration acceleration

Bearing condition

Pump cavitation

Application

These accelerometers are suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 120 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The compact design and the position of the cable, which is passed through the base, reduces the installation space required for this type of accelerometers considerably.

The accelerometers are mainly used for continuous machine condition monitoring in an industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

Installation accessories

VIB 3.417-M5	M5 screwed adapter for mini accelerom.
VIB 3.417-M6	M6 screwed adapter for mini accelerom.
VIB 3.418	Adhesive adapter for mini accelerom.
VIB 3.423	Magnetic holder for flat surfaces

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

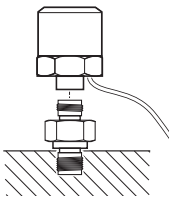
Installation material for sensor cable

VIB 93025	TNC plug for RG 174 cable
VIB 81015	Protective sleeve for RG 174 cable

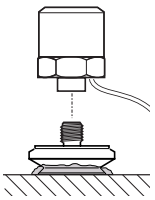
Extending the sensor cable

To extend the sensor cable installed, use shielded cables (coaxial or triaxial) that are electrically connected in a junction box (e.g. VIB 6.776).

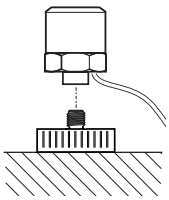
Mounting types



Screwed adapter
VIB 3.417-M5
VIB 3.417-M6



Adhesive adapter
VIB 3.418



Magnetic adapter
VIB 3.423

Accessories for RG 174 cable

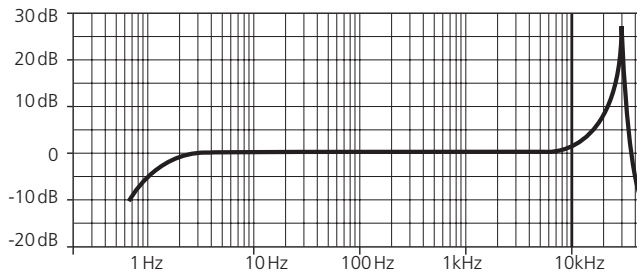
TNC plug
VIB 93025

TNC plug + protective sleeve
VIB 93025 + VIB 81015

Technical data

PARAMETER			VIB 6.202	VIB 6.203
Measurement	Signaling system		Current Line Drive; 3.5 ± 1.5 mA closed current with superposed AC signal	
	Transmission factor	± 10%	1.0 µA/ms^{-2} (Reference: 159 Hz; 25 °C)	
	Frequency range	± 10%	4 Hz ... 8 kHz	
		± 3dB	2 Hz ... 10 kHz	
	Resonance frequency		30 kHz	
	Linearity range	± 10%	± 961 ms^{-2} (±98g)	
	Temperature range		-30 °C ... +80 °C	-30 °C ... +120 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC	
	Temperature sensitivity		< 0.08 ms^{-2}/K	
	Electrical noise, rms		< 0.1 ms^{-2} ab 2 Hz	
	Output impedance		> 250 kOhm	
Mechanical	Case material		Stainless steel VA 1.4305 / Grivory HTV (resistant amongst others to diesel, crude oil, hydraulic and engine oil, lubricants, tar, turpentine)	
	Environmental protection		IP 65 (w/ cable)	
	Shock limit		< 250 kms^{-2}	
	Weight		22 g	
	Dimensions		see figure	
	Mounting		Adapter w/ UNF 1/4 thread	
	Connection cable			
	Specification		Coaxial, RG 174/U	Coaxial, Raychem Spec. 44
	Diameter		2.8 mm	2.4 mm
	Material		PVC - Polyvinylchloride	PVDF - Polyvinylidenfluoride: highly resistant to many acids, alkalis, hydrocarbon solvents, fuels, lubricants, water, and many missile fuels and oxidizers
	Protective sleeve, material		EVA, non halogen line Temp.range: - 40°C .. +70°C	---

Frequency response - VIB 6.202 / VIB 6.203



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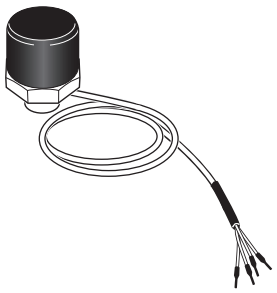
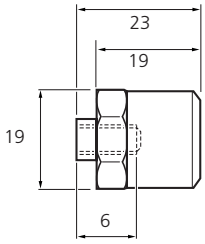
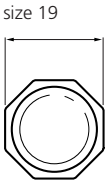
VIB 7.205-2,9: VIBCONNECT RF sensor





Dimensions in mm



Vibration acceleration

Temperature

Application

This accelerometer is suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 300 min^{-1} and for temperature measurements.

The compact design and the position of the cable reduces the installation space required for this type of accelerometers considerably.

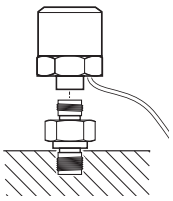
The accelerometer is used together with the wireless CMS VIBCONNECT RF for continuous machine condition monitoring in an industrial environment.

Installation accessories

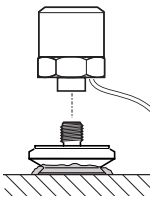
VIB 3.417-M5	M5 screwed adapter for mini accelerom.
VIB 3.417-M6	M6 screwed adapter for mini accelerom.
VIB 3.418	Adhesive adapter for mini accelerom.
VIB 3.423	Magnetic holder for flat surfaces

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

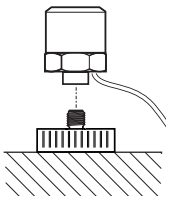
Mounting types



Screwed adapter
VIB 3.417-M5
VIB 3.417-M6



Adhesive adapter
VIB 3.418

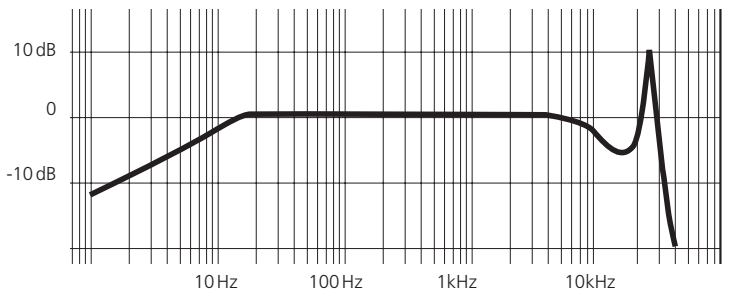


Magnetic adapter
VIB 3.423

Technical data

PARAMETER			VIB 7.205-2,9
Measurement, Vibration	Sensortype		Combined accelerometer / temperature sensor with low power consumption
	Output	± 10%	3.5 mV / ms^{-2}
	Max. measuring range	± 10%	500 m/s^2 rms
	Offset		2.5 VDC
	Frequency range	± 10%	10 Hz ... 8 kHz
		± 3dB	5 Hz ... 10 kHz
	Resonance frequency		23 kHz (Resonance rise: 9 dB)
Temperature	Temperature measuring range		-40 °C ... +85 °C
	Output	± 3%	-5.5 mV/K
	Benchmark		898 mV at 25°C
Electrical	Power requirement		5 VDC / < 0.5 mA
	Temperature sensitivity		< 0.08 ms^{-2}/K
	Electrical noise, rms		< 0.0015 ms^{-2} / $Hz^{1/2}$ from 30 Hz to 10 kHz < 0.005 m/s^2 at 5 Hz
General	Case material		Stainless steel VA 1.4305 / Grivory HTV (resistant amongst others to diesel, crude oil, hydraulic and engine oil, lubricants, tar, turpentine)
	Environmental protection		IP 65
	Shock limit		< 250 kms^{-2}
	Relative humidity		< 95%, non-condensed
	Weight		22 g
	Dimensions		see figure
	Mounting		Adapter w/ UNF 1/4 thread
	Connection cable		
	Specification		3 wire, shielded
	Outer diameter		2.9 mm
	Length		2.9 m
	Material		ETFE
	Chemical resistance		Highly resistant to acid, alkali, oil, fuel

Frequency response - VIB 7.205-2,9



Connection cable, color code:

VIB 7.205-2,9	
Wire color	**Function**
Red	Power, 5 VDC
Black	Temperature signal
White	Vibration signal
Shield	GND

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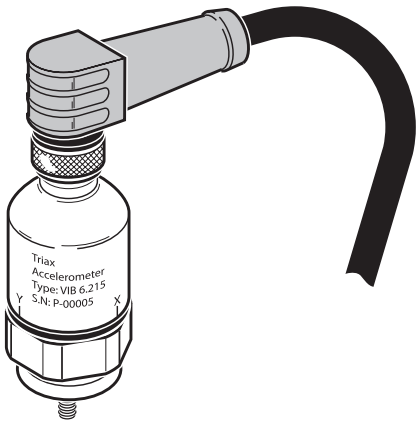
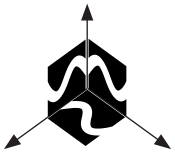
Hybrid triaxial accelerometers for VIBGUARD

VIB 6.215:	Hybrid triaxial accelerometer for VIBGUARD 1 Hz ... 10 kHz (Z)
VIB 6.216:	Hybrid triaxial accelerometer for VIBGUARD 0.1 Hz ... 10 kHz (Z)





Application

Detection of low frequency mechanical vibration in three axes, such as on wind turbines.

Function

Vibrations in the X and Y directions are detected by a MEMS sensor*. A PRUFTECHNIK accelerometer measures vibrations in the Z direction.

*MEMS: MicroElectroMechanical System

Mounting

The sensor is glued onto the machine. The orientation of the measurement axis has to be observed during installation. The positions of the X and Y axes are labeled on the sensor housing. The Z-axis points onto the object.

Connection

The connection to the VIBGUARD condition monitoring system is carried out with a cable available as an accessory.

Accessories

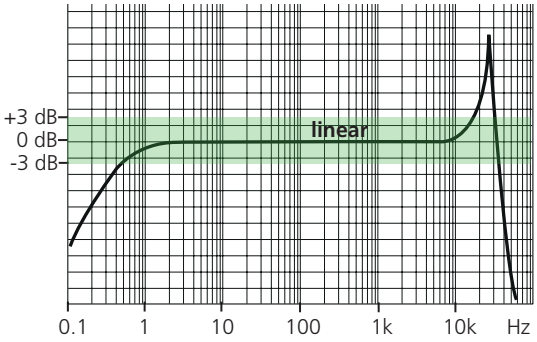
VIB 3.575-10	Connection cable for triax accelerometer VIB 6.215, 10 m
VIB 3.575-20	Connection cable for triax accelerometer VIB 6.215, 20 m

Technical data

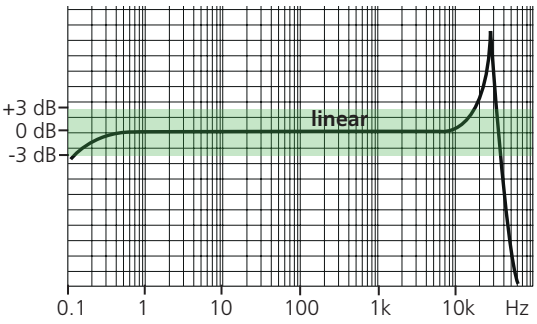
PARAMETER			VIB 6.215	VIB 6.216
Measurement	Signaling system	X / Y Z	Voltage ICP	
	Measuring range (0-p)	X / Y Z	19.6 m/s² 400 m/s²	
	Transmission factor	X / Y Z	67 mV/ms^{-2} , ± 6% @ 159 Hz 20 mV/ms^{-2} , ± 3% @ 159 Hz	
	Frequency range	X / Y Z	0 Hz ...1 kHz (± 3dB) 1 Hz ...10 kHz (± 3dB)	0 Hz ...1 kHz (± 3dB) 0.1 Hz ...10 kHz (± 3dB)
	Resonance frequency	X / Y Z	2.5 kHz 28 kHz	
	Grav. acceleration voltage	X / Y	± 660 mV, ±6%	
	Max. deviation from linear average after 360° rotation	X / Y	±2% of meas. value	
	Inaccuracy of axis labeling		< ± 5°	
	Temperature sensitivity	X Y Z	AC / DC: -0.03% of meas. value/K AC: -0.03% of m.v./K; DC: +0.03% of m.v./K 0.1% of m.v./K	
	Temperature leap sensitivity	X / Y Z	0.015 ms^{-2}/K 3.1 ms^{-2}/K	
	Transverse sensitivity		< 5%	
	Sound sensitivity	X / Y Z	< 1.5 ms^{-2}/mPa < 0.15 ms^{-2}/mPa	
Electrical	Power supply	X / Y Z	MEMS electronics via Z channel 24 VDC / 3-10 mA, ±10%	
	Noise	X / Y	0.0005 ms^{-2}/(Hz)^{½} for 1 Hz ... 1 kHz	0.0005 ms^{-2}/(Hz)^{½} for 0.1 Hz ... 1 kHz
	Noise	Z Z	0.005 ms^{-2} at 1 Hz 0.0005 ms^{-2}/(Hz)^{½} for 10 Hz ... 10 kHz	
	Output impedance		100 Ohm	
	Output bias	X / Y Z	1.65 VDC 10.5-13.5 VDC	
Environment	Temperature range		-40°C ... +85 °C	
	Relative humidity		95%, non-condensing	
	Chemical resistance, cable		Oil, alcohol	
	Environmental protection, w/ cable		IP 65	
	Shock limit		< 100 kms^{-2} (10000 g)	
Mechanical	Case material		Stainless steel 1.4305	
	Mounting		Adhesive mount	
	Connection		M12 plug, 4 wire, A coded	
	Weight		62 g	

Response curves

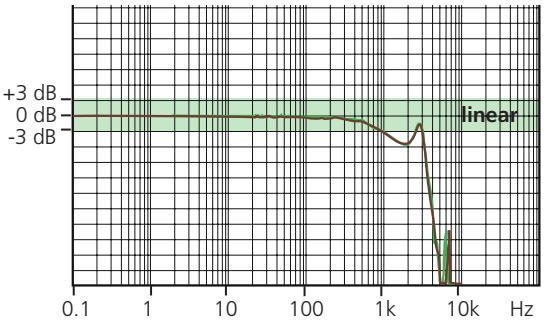
VIB 6.215: Frequency response Z axis



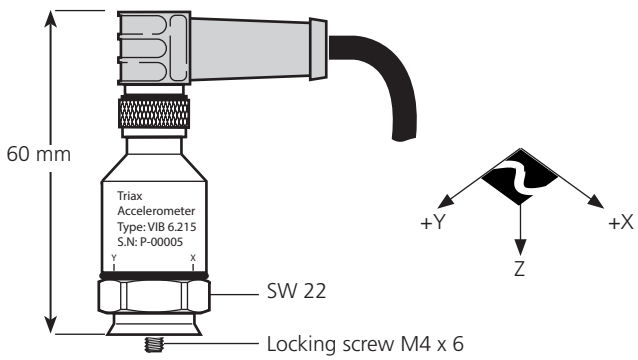
VIB 6.216: Frequency response Z axis



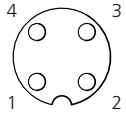
VIB 6.215 / VIB 6.216: Frequency response
X axis (green); Y axis (brown)



Dimensions



Pin allocation, sensor connection socket:



Pin 1 : X axis
Pin 2 : Y axis
Pin 3 : Z axis
Pin 4 : GND

Color code, connection cable:

Wire 1 : brown, bn
Wire 2 : blue, bu
Wire 3 : black, bk
Wire 4 : Shield

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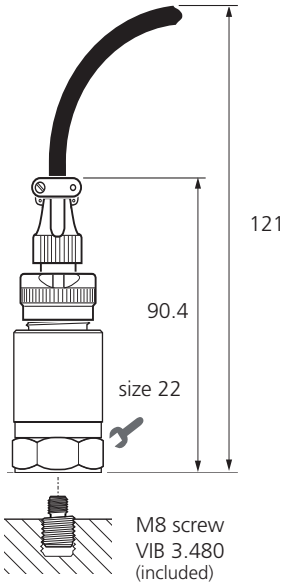
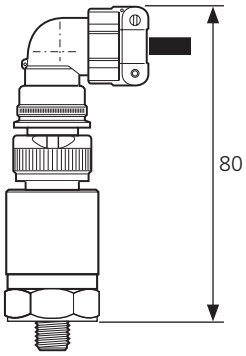
VIBROTECTOR vibration transmitters

VIB 5.731 : VIBROTECTOR vibration transmitter, 10 Hz - 1 kHz

VIB 5.736 : VIBROTECTOR vibration transmitter, 2 Hz - 1 kHz





Vibration velocity

Dimensions in mm

Application

The VIBROTECTOR vibration transmitter measures vibration velocity and is used for the continuous monitoring of absolute machine vibrations. The output signal (4-20mA) is output for analysis and alarm directly on the control system.

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for VIBROTECTOR:
VIB 3.437 Screwed adapter to M8-90°
VIB 3.438 Screwed adapter to M8 flat
VIB 3.439 Screwed adapter to M5 flat
VIB 3.480 M8 screw
VIB 3.433 Adhesive adapter

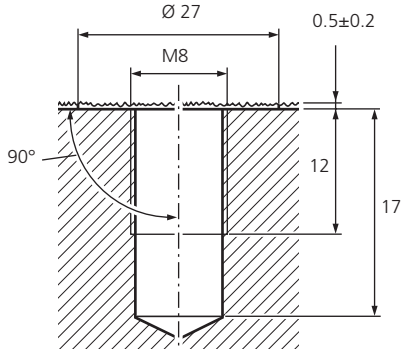
Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Connection cables
VIB 5.740-X Connection cable (silicone) w/ straight plug, X meters long.
VIB 5.741-X Connection cable (silicone) w/ angled plug, X meters long.
VIB 5.745-L Connection cable (PUR) w/ angled plug, X meters long.
VIB 5.746-L Connection cable (PUR) w/ straight plug, L meters long.

Mounting VIBROTECTOR

- Drill the mounting hole as shown in the graphics.
- Clean and smooth the area around the mounting hole (Abrasive paper, type 220).
- Clean both contact surfaces with solvent.
- Cover one of the dried surfaces with a thin film of LOCTITE 243 for better signal transmission.
- Screw in the VIBROTECTOR (3-7Nm!).

Mounting hole for M8 screw

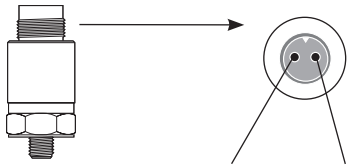


Dimensions in mm

Technical data

PARAMETER		VIB 5.731	VIB 5.736
Measurement	Output signal	Current level (4-20mA)	
	Measurement range (RMS) ±2%	≤ 20 mm/S (Ref.: 159 Hz)	
	Frequency range ± 10%	10 Hz ... 1 kHz	2 Hz ... 1 kHz
	Temperature range	-30 °C ... +80 °C	
	Temperature sensitivity	- 0.4 µA/K	
Electrical	Supply voltage (loop power)	24 VDC (±5%)	
	Loop resistance	90 ... 360 Ohm	
	Insulation	complete	
Mechanical	Case material	Stainless steel VA 1.4305	
	Environmental protection	IP 67 (IP 68 w/ special cable)	
	Shock limit	50 km/s²	
	Connector type	Cable connector, 2 pin (Cannon, Mil-C5015)	
	Weight	80 g	
	Mounting	M8 thread	

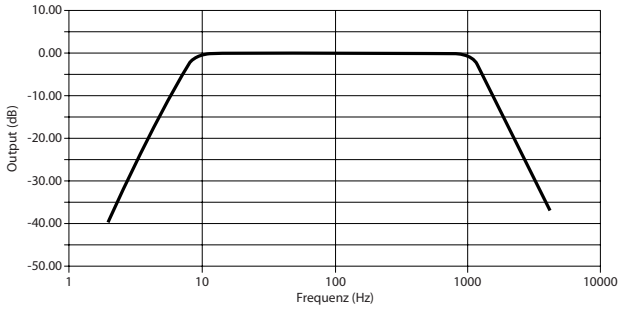
Sensor pin allocation



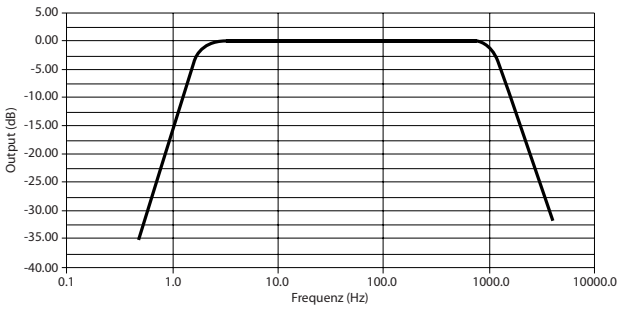
Polarity, VIB 5.73x	+ / signal	- / shield

Frequency response

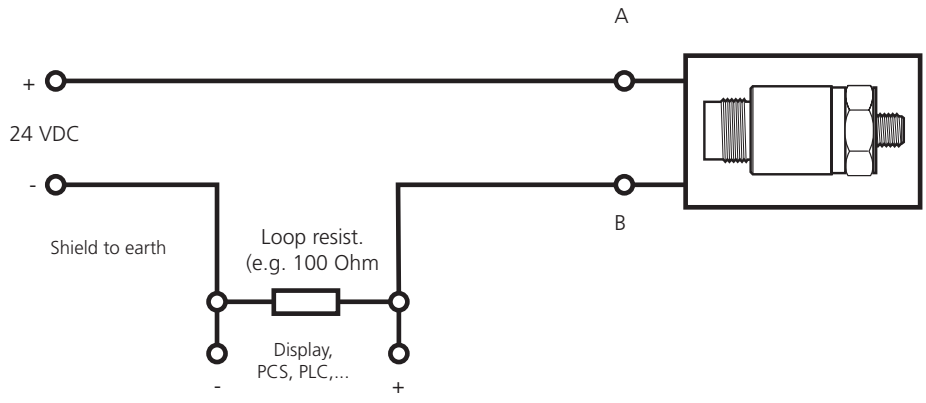
VIBROTECTOR, 10 Hz - 1 kHz (VIB 5.731)



VIBROTECTOR, 2 Hz - 1 kHz (VIB 5.736)



Connecting VIBROTECTOR to PCS, PLC



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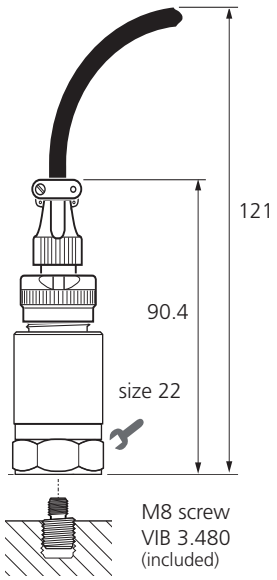
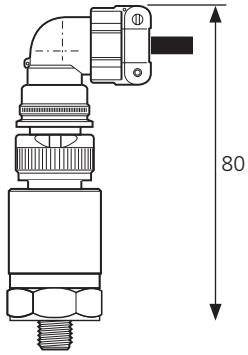
Industrial accelerometers for very low-speed machinery (n > 6 min^{-1})

VIB 6.172 :	ICP-type accelerometer for very low-speed machinery 0.1 Hz - 10 kHz, Mil connector
VIB 6.195 :	CLD accelerometer for very low-speed machinery 0.1 Hz - 10 kHz, Mil connector





Vibration acceleration

CLD: Current Line Drive

ICP: Integrated Circuit Piezoelectric

Dimensions in mm

Application

These accelerometers are used for the measurement of very slowly rotating machinery components such as the main bearings of a wind turbine.

Installation and connection

Permanent mounting using a threaded or adhesive adapter. The accelerometer is connected to the measuring device with a screened twisted pair cable.

Installation accessories

Mounting tools for screw threads:

VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for VIB 6.195 / VIB 6.172:

VIB 3.437 Screwed adapter to M8-90°
VIB 3.438 Screwed adapter to M8 flat
VIB 3.439 Screwed adapter to M5 flat
VIB 3.480 M8 screw
VIB 3.433 Adhesive adapter
VIB 3.423 Magnetic holder for flat surfaces

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Connection cables

VIB 5.740-X Connection cable (silicone) w/ straight plug, X meters long.
VIB 5.741-X Connection cable (silicone) w/ angled plug, X meters long.
VIB 5.745-L Connection cable (PUR) w/ angled plug, X meters long.
VIB 5.746-L Connection cable (PUR) w/ straight plug, L meters long.

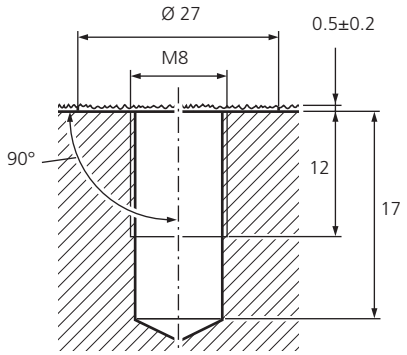
Connecting VIBXPERT II via sensor cable VIB 5.436 plus:

VIB 5.449-ICP Cable adapter for ICP-type accelerometer VIB 6.172
VIB 5.449-CLD Cable adapter for CLD-type accelerometer VIB 6.195

Mounting

- Drill the mounting hole as shown in the graphics.
- Clean and smooth the area around the mounting hole (Abrasive paper, type 220).
- Clean both contact surfaces with solvent.
- Cover one of the dried surfaces with a thin film of LOCTITE 243 for better signal transmission.
- Screw in the accelerometer (3-7Nm!).

Mounting hole for M8 screw

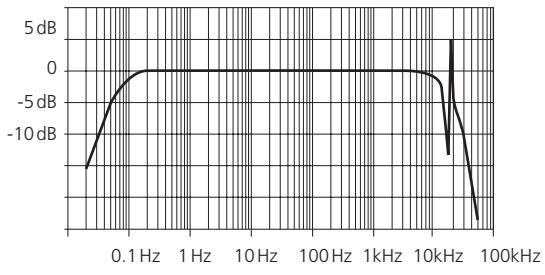


Dimensions in mm

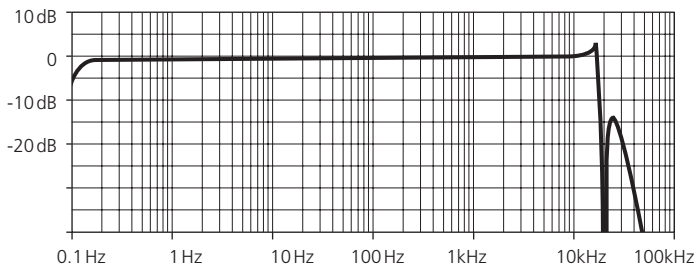
Technical data

PARAMETER			VIB 6.172	VIB 6.195
Measurement	Signaling system		ICP	Current Line Drive; 3.5 mA closed current w/ superposed AC signal
	Transmission factor	± 4%	100 mV/g (Ref.: 159 Hz; 25 °C)	5.35 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 3dB	0.1 Hz ... 10 kHz	
	Resonance frequency		17 kHz; > 10 dB damped	17 kHz; > 20 dB damped
	Linearity range		< 70 g (r.m.s.) ± 1%	± 450 ms^{-2} ± 10%
	Temperature range		-40 °C ... +120 °C	-30 °C ... +80 °C
Electrical	Power requirement		2 - 10 mA / 24 VDC (±10%)	> 10 mA / 7-18 VDC
	Bias, DC output		12 V DC (±0.5V)	--
	Grounding		insulated from machine ground, internal shielding	--
	Transverse sensitivity		< 5% at 5 kHz	< 5% at 10 kHz
	Temperature sensitivity		< 0.15 g/K	< 0.01 ms^{-2}/K
	Magnetic sensitivity		< 0.1 g/T (at 50 Hz)	< 1 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.001 g/µm/m	< 0.1 ms^{-2}/µm/m
	Acoustic sensitivity (130 dB)		0.0004 g	---
	Electrical noise, (0.1 Hz - 20 kHz)		< 0.0005 g from 0.1 Hz	< 0.002 ms^{-2} from 2 Hz
	Output impedance		< 10 Ohm	> 300 kOhm
Mechanical	Case material		Stainless steel VA 1.4305	
	Environmental protection		IP 67 (w/ cable)	
	max. Shock limit		5000 g	--
	Connector type		Cable connector, 2 pole (Mil-C5015)	
	Weight		85 g	
	Dimensions		see previous page	
	Mounting		M8 thread	

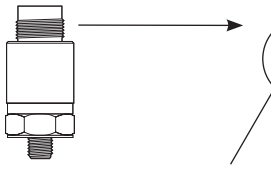
Frequency response - VIB 6.172



Frequency response - VIB 6.195



Sensor pin allocation



Polarity, VIB 6.195	GND	Signal
Polarity, VIB 6.172	Signal	GND

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Industrial accelerometers for standard machinery (n > 60 min^{-1}), intrinsically safe

VIB 6.102 DEX : Industrial accelerometer for standard machinery, adhesive mount, intrinsically safe
VIB 6.122 DEX : Industrial accelerometer for standard machinery, M8 thread mount, intrinsically safe
VIB 6.132 DEX : Industrial accelerometer for standard machinery, UNC 5/16 thread mount, intrinsically safe

Adhesive mount

Thread mount

Vibration acceleration

Bearing condition

Pump cavitation

0044

Application

These accelerometers are suitable for vibration measurements up to 20 kHz on machinery with rotational speeds above 60 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The accelerometers are mainly used for continuous machine condition monitoring in a hazardous industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

The accelerometers are gas and dust explosion-proof. They are suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.1xx DEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
VIB 3.475 Screwed adapter to M20
VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12
VIB 3.431 -, w/ adhesive mount

Mounting adapters for UNC 5/16 screw threads:
VIB 3.414 Screwed ad. w/ locking nut to UNC 5/16
VIB 3.415 -, w/ locking nut to UNC 3/8 - 16
VIB 3.416 -, w/ locking nut to UNC 1/2 - 13
VIB 3.432 -, w/ adhesive mount

Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm

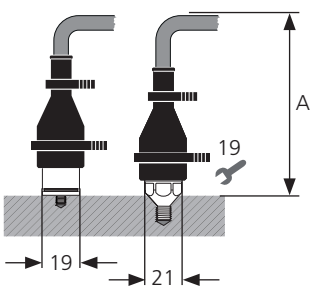
Extension post for UNC 5/16 screw threads:
VIB 8.590 length: 2 1/8“
VIB 8.591 length: 3 3/4“
VIB 8.592* length: 6 5/8“
* only for shock pulse measurements!

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

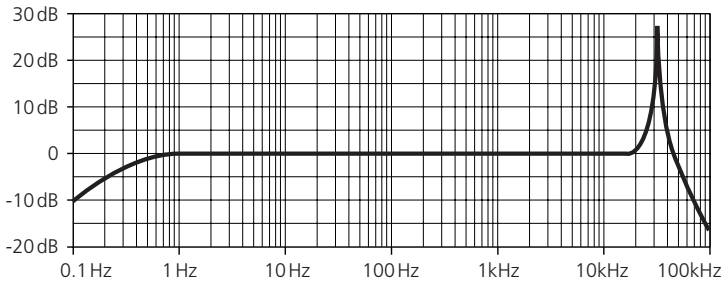
Technical data

PARAMETER			VIB 6.102 DEX	VIB 6.122 DEX	VIB 6.132 DEX
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal		
	Transmission factor	± 3%	1.0 µA/ms^{-2} (Reference: 159 Hz; 25 °C)		
	Frequency range	± 5%	2 Hz ... 8 kHz		
		± 10%	1 Hz ... 12 kHz		
		± 3dB	1 Hz ... 20 kHz		
	Resonance frequency		36 kHz		
	Linearity range	± 10%	± 961 ms^{-2}		
	Temperature range, w/ Rayolin cable		-30 °C ... +80 °C		
Electrical	Power requirement		> 10 mA / 7-18 VDC		
	Transverse sensitivity		< 5% at 10 kHz		
	Temperature sensitivity		< 0.05 ms^{-2}/K		
	Magnetic sensitivity		< 5 ms^{-2}/T (at 50 Hz)		
	Base strain sensitivity		< 0.1 ms^{-2}/µm/m		
	Electrical noise, rms		< 0.01 ms^{-2} from 2 Hz		
	Output impedance		> 1 MOhm		
	Insulation		> 10^9 MOhm		
Mechanical	Case material		Stainless steel VA 1.4305		
	Environmental protection		IP 65 (w/ cable)		
	Cable connection		TNC socket		
	Shock limit		< 250 kms^{-2}		
	Weight		40 g		
	Installation height A (see below)				
	w/ coaxial cable & straight TNC plug		> 119 mm	> 115 mm	
	Mounting		Adhesive	M8 thread	UNC 5/16 thread
EX	Marking, gas explosion protection		Ⓔx II 2 G Ex ib IIC T4		
	Marking, dust explosion protection		Ⓔx II 2 D Ex ib IIIB $T_5$187°C		

Dimensions
in mm



Frequency response



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VIB 6.152 DEX: Industrial accelerometer, low sensitivity, intrinsically safe

0,1 µA/ms^{-2}

M8 thread

Vibration acceleration

Bearing condition

Pump cavitation

0044

Application

This accelerometer is suitable for vibration measurements up to 20 kHz on machinery with rotational speeds above 5000 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The accelerometer is mainly used for continuous machine condition monitoring in a hazardous industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

The accelerometer is gas and dust explosion-proof. It is suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.1xx DEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
VIB 3.475 Screwed adapter to M20
VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12
VIB 3.431 -, w/ adhesive mount

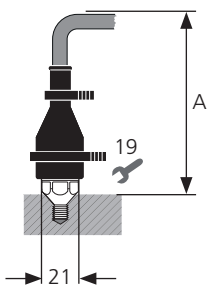
Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm
* only for shock pulse measurements!

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

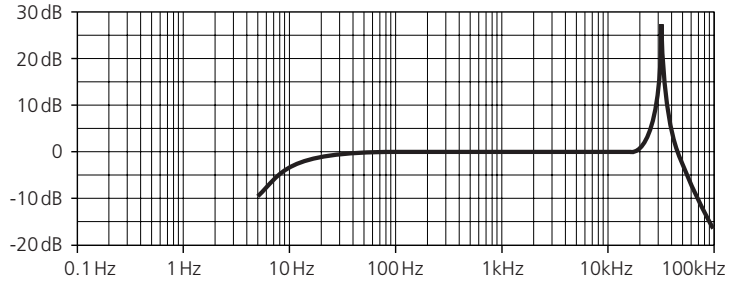
Technical data

PARAMETER			VIB 6.152 DEX
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal
	Transmission factor	± 3%	0.1 µA/ms^{-2} (Reference: 159 Hz; 25 °C)
	Frequency range	± 5%	2 Hz ... 8 kHz
		± 10%	1 Hz ... 12 kHz
		± 3dB	1 Hz ... 20 kHz
	Resonance frequency		36 kHz
	Linearity range	± 10%	± 961 ms^{-2}
	Temperature range, w/ Rayolin cable		-30 °C ... +80 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 10 kHz
	Temperature sensitivity		< 0.5 ms^{-2}/K
	Magnetic sensitivity		< 50 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 1 ms^{-2}/µm/m
	Electrical noise, rms		< 0.0005 ms^{-2} / Hz$^{1/2}$ from 15 Hz to 20 kHz < 0.005 ms^{-2} at 1 Hz
	Output impedance		> 1 MOhm
	Insulation		> 10^{9} MOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Cable connection		TNC socket
	Shock limit		< 250 kms^{-2}
	Weight		40 g
	Installation height A (see below)		
	w/ coaxial cable & straight TNC plug		> 115 mm
	Mounting		M8 thread
EX	Marking, gas explosion protection		⟨Ex⟩ II 2 G Ex ib IIC T4
	Marking, dust explosion protection		⟨Ex⟩ II 2 D Ex ib IIIB T$_5$187°C

Dimensions
in mm



Frequency response



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Industrial accelerometers for low-speed machinery (n > 20 min^{-1}), intrinsically safe

VIB 6.107 DEX : Industrial accelerometer for low-speed machinery, adhesive mount, intrinsically safe
VIB 6.127 DEX : Industrial accelerometer for low-speed machinery, M8 thread mount, intrinsically safe
VIB 6.137 DEX : Industrial accelerometer for low-speed machinery, UNC 5/16 thread mount, intrinsically safe

Adhesive mount

Thread mount

Vibration acceleration

0044

Application

These accelerometers are suitable for vibration measurements up to 10 kHz on low-speed machinery with rotational speeds above 20 min^{-1}. High frequency shock pulse measurements for bearing condition evaluation and pump cavitation are not possible with this series.

The accelerometers are mainly used for continuous machine condition monitoring in a hazardous industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

The accelerometers are gas and dust explosion-proof. They are suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.1xx DEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

Mounting tools for screw threads:
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for M8 screw threads:
VIB 3.474 Screwed adapter to M16
VIB 3.475 Screwed adapter to M20
VIB 8.772 Screwed adapter to M10
VIB 3.411 -, w/ locking nut to M8
VIB 3.412 -, w/ locking nut to M10
VIB 3.413 -, w/ locking nut to M12
VIB 3.431 -, w/ adhesive mount

Mounting adapters for UNC 5/16 screw threads:
VIB 3.414 Screwed ad. w/ locking nut to UNC 5/16
VIB 3.415 -, w/ locking nut to UNC 3/8 - 16
VIB 3.416 -, w/ locking nut to UNC 1/2 - 13
VIB 3.432 -, w/ adhesive mount

Extension post for M8 screw threads:
VIB 8.586 length: 55 mm
VIB 8.587 length: 95 mm
VIB 8.588* length: 170 mm
VIB 8.589 length: 35 mm

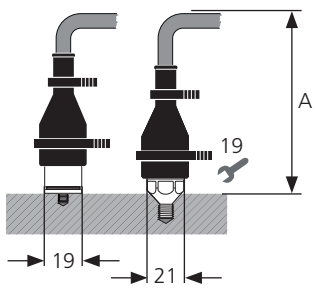
Extension post for UNC 5/16 screw threads:
VIB 8.590 length: 2 1/8"
VIB 8.591 length: 3 3/4"
VIB 8.592* length: 6 5/8"
* only for shock pulse measurements!

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

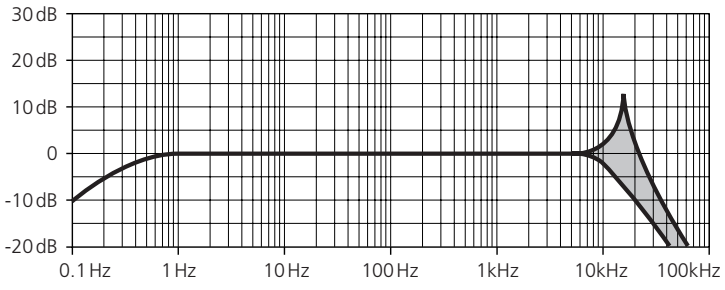
Technical data

PARAMETER		VIB 6.107 DEX	VIB 6.127 DEX	VIB 6.137 DEX
Measurement	Signaling system	Current LineDrive, 3.5 mA closed current with superposed AC signal		
	Transmission factor ± 4%	5.35 µA/ms^{-2} (Reference: 159 Hz; 25 °C)		
	Frequency range ± 5%	2 Hz ... 4 kHz		
	± 10%	1 Hz ... 6 kHz		
	± 3dB	0.3 Hz ... 10 kHz		
	Resonance frequency	17 kHz; > 20 dB damped		
	Linearity range ± 10%	± 450 ms^{-2}		
	Temperature range, w/ PVC cable	-30 °C ... +80 °C		
Electrical	Power requirement	> 10 mA / 7-18 VDC		
	Transverse sensitivity	< 5% at 10 kHz		
	Temperature sensitivity	< 0.01 ms^{-2}/K		
	Magnetic sensitivity	< 1 ms^{-2}/T (bei 50 Hz)		
	Base strain sensitivity	< 0.1 ms^{-2}/µm/m		
	Electrical noise, rms	< 0.002 ms^{-2} from 2 Hz		
	Output impedance	> 300 kOhm		
	Insulation	> 10^9 MOhm		
Mechanical	Case material	Stainless steel VA 1.4305		
	Environmental protection	IP 65 (w/ cable)		
	Cable connection	TNC socket		
	Shock limit	< 50 kms^{-2}		
	Weight	41 g	43 g	
	Installation height A (see below)			
	w/ coaxial cable & straight TNC plug	> 124 mm	> 120 mm	
	Mounting	Adhesive	M8 thread	UNC 5/16 thread
EX	Marking, gas explosion protection	Ex II 2 G Ex ib IIC T4		
	Marking, dust explosion protection	Ex II 2 D Ex ib IIIB $T_5$187°C		

Dimensions
in mm



Frequency response



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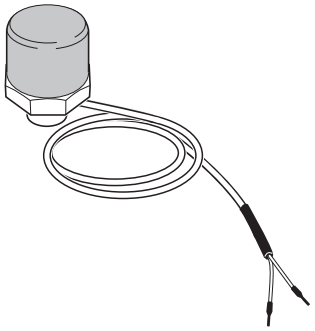
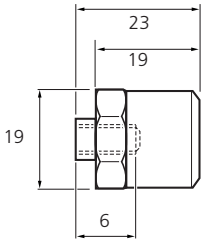
A

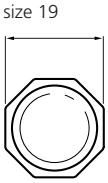
Mini accelerometers, intrinsically safe

VIB 6.202-6XD: Mini accelerometer with RG 174 cable, 6 meters, intrinsically safe
VIB 6.202-10XD: Mini accelerometer with RG 174 cable, 10 meters, intrinsically safe
VIB 6.203-3XD: Mini accelerometer with Spec 44 cable, 3 meters, intrinsically safe
VIB 6.203-6XD: Mini accelerometer with Spec 44 cable, 6 meters, intrinsically safe





Dimensions in mm



Vibration acceleration

Bearing condition

Pump cavitation

CE 0044

Application

These accelerometers are suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 120 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The compact design and the position of the cable, which is passed through the base, reduces the installation space required for this type of accelerometers considerably.

The accelerometers are mainly used for continuous machine condition monitoring in a hazardous industrial environment. The signal acquisition and processing is carried out with a condition monitoring system from PRÜFTECHNIK (e.g. VIBNODE, VIBROWEB,...).

Installation accessories

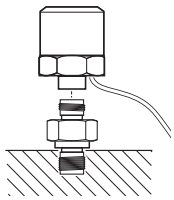
VIB 3.417-M5	M5 screwed adapter for mini accelerom.
VIB 3.417-M6	M6 screwed adapter for mini accelerom.
VIB 3.418	Adhesive adapter for mini accelerom.
VIB 3.423	Magnetic holder for flat surfaces

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

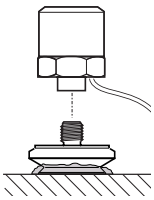
Installation material for sensor cable

VIB 93025	TNC plug for RG 174 cable
VIB 81015	Protective sleeve for RG 174 cable

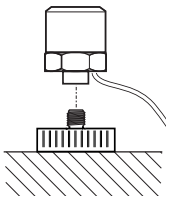
Mounting types



Screwed adapter
VIB 3.417-M5
VIB 3.417-M6



Adhesive adapter
VIB 3.418



Magnetic adapter
VIB 3.423

Notes on intrinsic safety

Mini accelerometers of the series VIB 6.20..XD may only be connected to designated devices with the following interface parameters:

U_i = 24 V	C_i = 15 nF
P_i = 300 mW	L_i = 0 H

The sensor is delivered with a permanently attached cable. When selecting the cable length, take into consideration the capacitance and inductance of the cable type:

RG174	Spec 44
C_{cable} = 111 pF	C_{cable} = 430 pF
L_{cable} = 277 nH	L_{cable} = 154 nH

If the open cable ends are connected within the hazardous area, the explosion protection type must not be impaired, taking into account the intended use.

The sensor should be protected against mechanical destruction or damage.

The sensor should be protected from direct sunlight.

The intrinsically safe power circuit should be connected to the equipotential bonding system.

The details in the EC type examination certificate ZELM 07 ATEX 0327 X should be observed.

The admissible inductance and capacitance of the intrinsic power supply must be followed!

The european installation instructions (EN 60079-14 / EN 61241-14) must be followed.

The metal body isolated from the intrinsically safe supply must be electrostatically grounded.

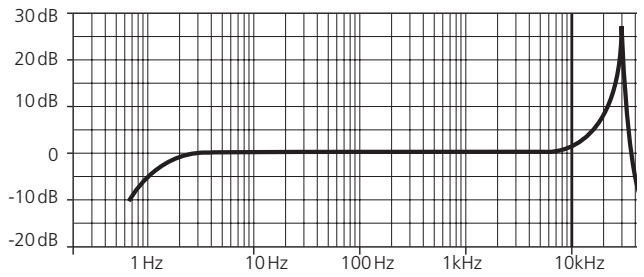
Service and maintenance cannot be performed on the sensor.

Technical data

PARAMETER			VIB 6.202.. XD	VIB 6.203.. XD
Measurement	Signaling system		Current Line Drive; 3.5 ± 1.5 mA closed current with superposed AC signal	
	Transmission factor	± 10%	1.0 µA/ms^{-2} (Reference: 159 Hz; 25 °C)	
	Frequency range	± 10%	4 Hz ... 8 kHz	
		± 3dB	2 Hz ... 10 kHz	
	Resonance frequency		30 kHz	
	Linearity range	± 10%	± 961 ms^{-2} (±98g)	
	Temperature range		-30 °C ... +80 °C	
Electrical	Power requirement		> 10 mA / 7-18 VDC	
	Temperature sensitivity		< 0.08 ms^{-2}/K	
	Electrical noise, rms		< 0.1 ms^{-2} ab 2 Hz	
	Output impedance		> 250 kOhm	
Mechanical	Case material		Stainless steel VA 1.4305 / Grivory HTV (resistant amongst others to diesel, crude oil, hydraulic and engine oil, lubricants, tar, turpentine)	
	Environmental protection		IP 67 (w/ cable)	
	Shock limit		< 250 kms^{-2}	
	Weight		22 g	
	Dimensions		see figure below	
	Mounting		Adapter w/ UNF 1/4 thread	
	Connection cable		Coaxial, RG 174/U	Coaxial, Raychem Spec. 44
		Diameter	2.8 mm	2.4 mm
		Material	PVC - Polyvinylchloride	PVDF - Polyvinylidenfluoride: highly resistant to many acids, alkalis, hydrocarbon solvents, fuels, lubricants, water, and many missile fuels and oxidizers
		Protective sleeve, material	EVA, non halogen line Temp.range: - 40°C .. +70°C	---
EX	Marking, gas explosion protection		⟨Ex⟩ II 2 G Ex ib IIC T4	
	Marking, dust explosion protection		⟨Ex⟩ II 2 D Ex ibD 21 T95°C	

Note
The maximum surface temperature for the installation in dust hazardous explosive areas (II 2 D) relates to procedure A of EN 61241-14 : 2005.

Frequency response - VIB 6.202 / VIB 6.203



Accessories for RG 174 cable

TNC plug
VIB 93025

TNC plug + protective sleeve
VIB 93025 + VIB 81015

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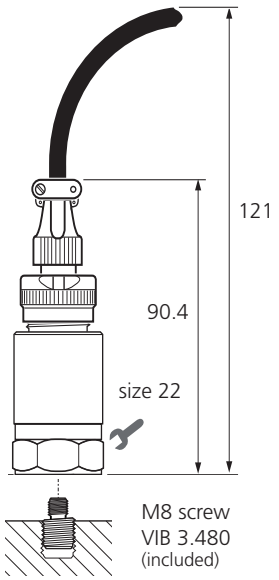
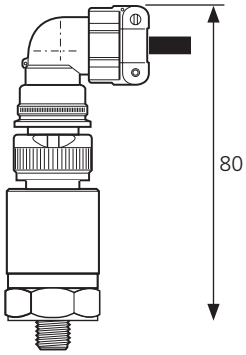
VIBROTECTOR vibration transmitters, intrinsically safe

VIB 5.731 EX :	VIBROTECTOR vibration transmitter, 10 Hz - 1 kHz, intrinsically safe
VIB 5.736 EX :	VIBROTECTOR vibration transmitter, 2 Hz - 1 kHz, intrinsically safe





Vibration velocity

CE 0044

Dimensions in mm

Application

The VIBROTECTOR vibration transmitter measures vibration velocity and is used for the continuous monitoring of absolute machine vibrations. The output signal (4-20mA) is output for analysis and alarm directly on the control system.

Installation accessories

Mounting tools for screw threads:

VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Mounting adapters for VIBROTECTOR:

VIB 3.437 Screwed adapter to M8-90°
VIB 3.438 Screwed adapter to M8 flat
VIB 3.439 Screwed adapter to M5 flat
VIB 3.480 M8 screw
VIB 3.433 Adhesive adapter

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

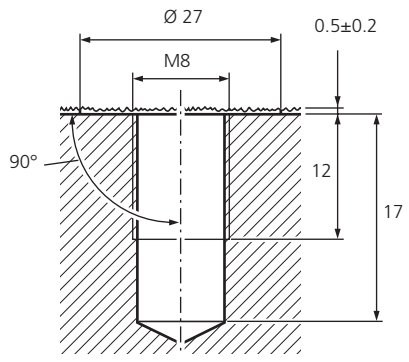
Connection cables

VIB 3.570-6 Connection cable (PUR) w/ straight plug,
VIB 3.570-12 6 or 12 meters long, permissible for a dust- and gas-explosive environment.
VIB 5.740-X Connection cable (silicone) w/ straight or
VIB 5.741-X angled plug, X meters long, permissible for a dust-and gas-explosive environment.
0 2088 0010 Transmitter supply unit for VIBROTECTOR EX

Mounting VIBROTECTOR

- Drill the mounting hole as shown in the graphics.
- Clean and smooth the area around the mounting hole (Abrasive paper, type 220).
- Clean both contact surfaces with solvent.
- Cover one of the dried surfaces with a thin film of LOCTITE 243 for better signal transmission.
- Screw in the VIBROTECTOR (3-7Nm!).

Mounting hole for M8 screw



Dimensions in mm

Notes on intrinsic safety

VIBROTECTOR vibration transmitter of the series 5.731 EX and VIB 5.731 EX may only be connected to designated devices with the following interface parameters:

U_i = 30 V C_i = 15 nF
P_i = 600 mW L_i = 0 H

The details in the EC type examination certificate TÜV 05 ATEX 2788 should be observed.

The admissible inductance and capacitance of the intrinsic power supply must be followed!

The european installation instructions (EN 60079-14 / EN 61241-14) must be followed. Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

The metal body isolated from the intrinsically safe supply must be electrostatically grounded.

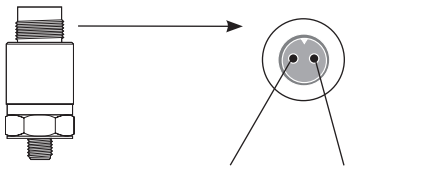
Service and maintenance cannot be performed on the sensor.

Technical data

PARAMETER		VIB 5.731 EX	VIB 5.736 EX
Measurement	Output signal	Current level (4-20mA)	
	Measurement range (RMS) ± 2%	≤ 20 mm/s (Ref.: 159 Hz)	
	Frequency range ± 10%	10 Hz ... 1 kHz	2 Hz ... 1 kHz
	Temperature range T_A	-25 °C ... +80 °C	
	Temperature sensitivity	- 0.4 µA/K	
Electrical	Supply voltage (loop power)	24 VDC (±5%)	
	Loop resistance	90 ... 360 Ohm	
	Insulation	complete	
Mechanical	Case material	Stainless steel VA 1.4305	
	Environmental protection	IP 67 (IP 68 for dust explosion protection only w/ special cable, immersion depth: 10 m)	
	Shock limit	50 km/s²	
	Connector type	Cable connector, 2 pin (Cannon, Mil-C5015)	
	Weight	80 g	
	Mounting	M8 thread	
EX	Marking, gas explosion protection	⟨Ex⟩ II 2 G EEx ib IIC T4	
	Marking, dust explosion protection	⟨Ex⟩ II 2 D Ex ibD21 IP68 T90°C	

IP 67 (IP 68 bei Staub-Explosionsschutz nur mit Spezialkabel)
Tauchtiefe (IP 68): 10 m

Sensor pin allocation

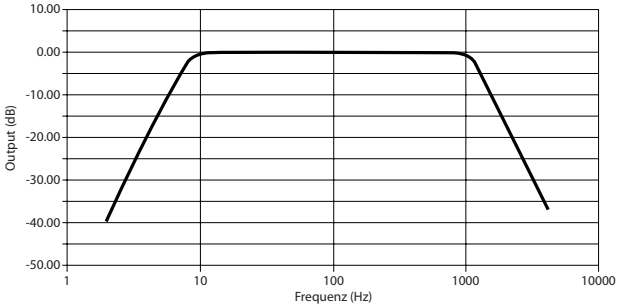


Polarity, VIB 5.73x	+ / signal	- / shield

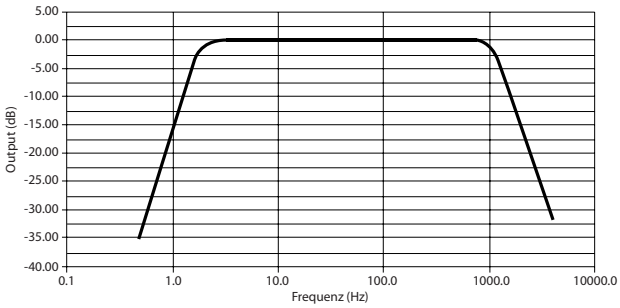
Note
The maximum surface temperature for the installation in dust hazardous explosive areas (II 2 D) relates to procedure A of EN 61241-14 : 2005.

Frequency response

VIBROTECTOR, 10 Hz - 1 kHz (VIB 5.731)



VIBROTECTOR, 2 Hz - 1 kHz (VIB 5.736)



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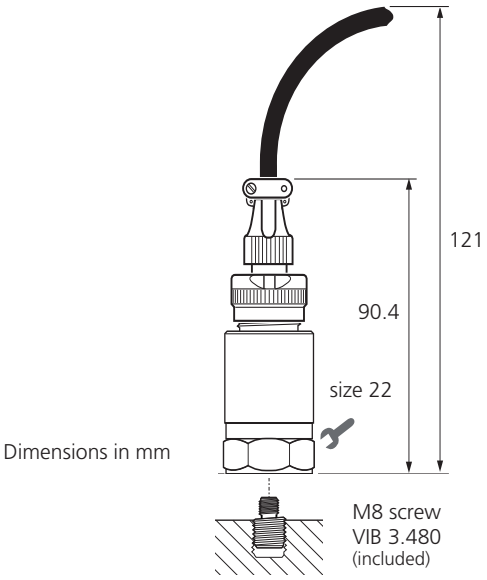
VIB 6.172 XICP: ICP-type accelerometer for very low-speed machinery ($n > 6\ min^{-1}$), intrinsically safe



Vibration acceleration

CE 0044

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Application

This accelerometer is used for the measurement of absolute machine vibrations. Due to the very low lower limit frequency, it is particularly suitable for very slowly rotating machinery components such as the main bearings of a wind turbine.

Installation and connection

Permanent mounting using a threaded or adhesive adapter or a magnetic holder (see accessories list below).

Installation accessories

Mounting tools for screw threads:

VIB 8.693	M8 screw tap
VIB 8.694	90° countersink bit

Mounting adapters for VIB 6.172:

VIB 3.437	Screwed adapter to M8-90°
VIB 3.438	Screwed adapter to M8 flat
VIB 3.439	Screwed adapter to M5 flat
VIB 3.480	M8 screw
VIB 3.433	Adhesive adapter
VIB 3.423	Magnetic holder for flat surfaces

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

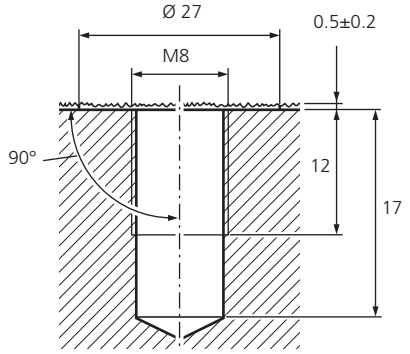
Connection cables

VIB 3.570-6	Connection cable (PUR) w/ straight plug,
VIB 3.570-12	6 or 12 meters long, permissible for a dust- and gas-explosive environment.
VIB 5.422	VIBXPERT connection cable for ICP-type accelerometers (only in gas-explosive environment)
0 2088 0009	Single-channel safety barrier for ICP-type accelerometers

Mounting

- Drill the mounting hole as shown in the graphics.
- Clean and smooth the area around the mounting hole (Abrasive paper, type 220).
- Clean both contact surfaces with solvent.
- Cover one of the dried surfaces with a thin film of LOCTITE 243 for better signal transmission.
- Screw in the accelerometer (3-7Nm!).

Mounting hole for M8 screw



Notes on intrinsic safety

The ICP-type accelerometer of the series VIB 6.172 XICP may only be connected to designated devices with the following interface parameters:

U_i = 38 V C_i = 10 nF
P_i = 1 W L_i = 0 H

The VIB 6.172 XICP accelerometer may be operated with VIBXPERT EX in gas-explosive environment. The accelerometer is connected to the instrument with the VIBXPERT cable for ICP-type accelerometers (VIB 5.422).

The operation with VIBXPERT EX in dust hazardous areas is prohibited.

The details in the EC type examination certificate TÜV 05 ATEX 2795 should be observed.

The admissible inductance and capacitance of the intrinsic power supply must be followed!

The european installation instructions (EN 60079-14 / EN 61241-14) must be followed. Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

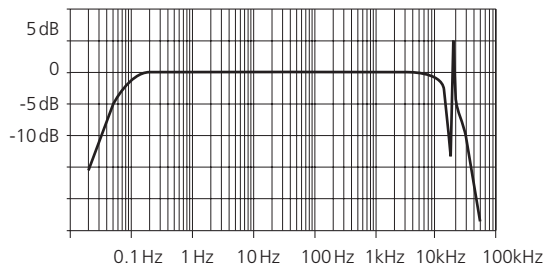
The metal body isolated from the intrinsically safe supply must be electrostatically grounded.

Service and maintenance cannot be performed on the sensor.

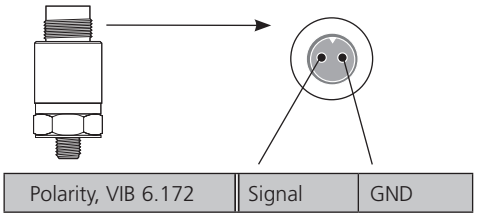
Technical data

PARAMETER			VIB 6.172 XICP
Measurement	Signaling system		ICP
	Transmission factor	± 4%	100 mV/g (Ref.: 159 Hz; 25 °C)
	Frequency range	± 3dB	0.1 Hz ... 10 kHz
	Resonance frequency		17 kHz; > 10 dB damped
	Linearity range	± 1%	< 70 g (r.m.s.)
	Temperature range		-40 °C ... +80 °C
Electrical	Power requirement		2 - 10 mA / 24 VDC (±10%)
	Bias, DC output		12 V DC (±0.5V)
	Grounding		insulated from machine ground, internal shielding
	Transverse sensitivity		< 5% at 5 kHz
	Temperature sensitivity		< 0.15 g/K
	Magnetic sensitivity		< 0.1 g/T (at 50 Hz)
	Base strain sensitivity		< 0.001 g/µm/m
	Acoustic sensitivity (130 dB)		0.0004 g
	Electrical noise, (0.1 Hz - 20 kHz)		< 0.0005 g
	Output impedance		< 10 Ohm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 67 (IP 68 for dust explosion protection only w/ special cable, immersion depth: 10 m)
	max. Shock limit		5000 g
	Connector type		Cable connector, 2 pole (Mil-C5015)
	Weight		85 g
	Dimensions		see previous page
	Mounting		M8 thread
EX	Marking, gas explosion protection		Ex II 2 G Ex ib IIC T4
	Marking, dust explosion protection		Ex II 2 D Ex ibD21 IP68 T95°C

Frequency response - VIB 6.172 XICP



Sensor pin allocation



Polarity, VIB 6.172	Signal	GND

Note
The maximum surface temperature for the installation in dust hazardous explosive areas (II 2 D) relates to procedure A of EN 61241-14 : 2005.

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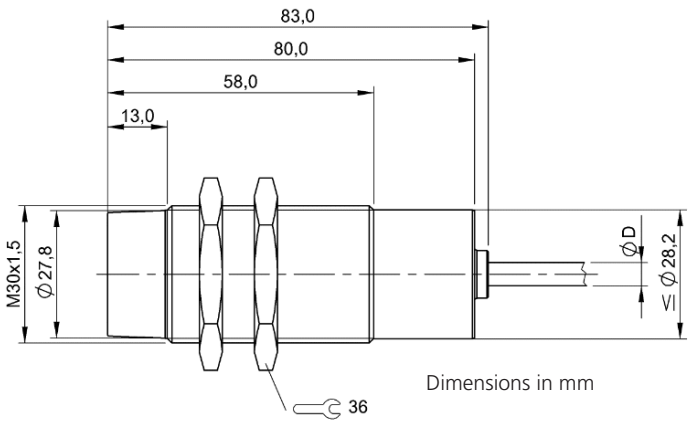
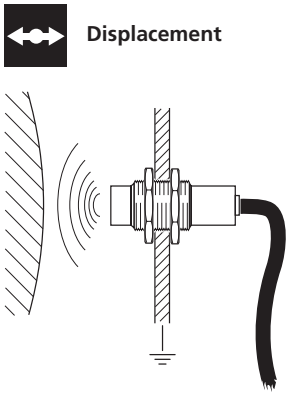
VIB 5.991-DIS: Inductive displacement sensor



Dimensions in mm



Application

The displacement sensor is used for contact-free measuring the relative displacement and relative expansion.

Note

The sensor is supplied with a connection cable (6 m).

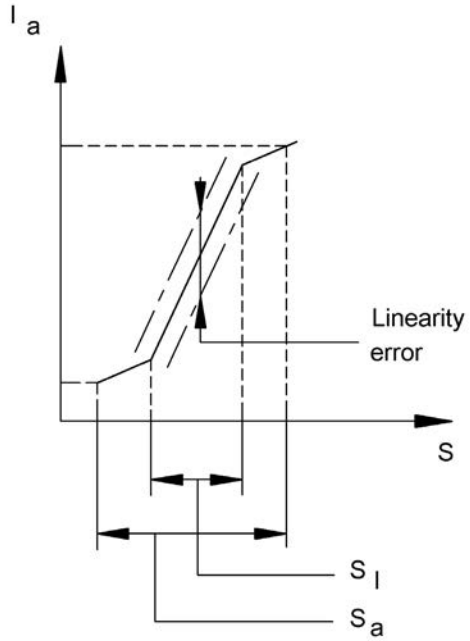
Function

The evaluation electronics are integrated in the sensor and provide an interference insensitive output signal that can also be transmitted over long distances.

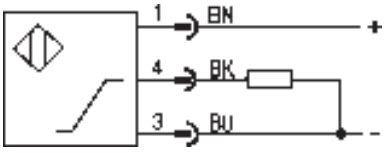
Technical data

	PARAMETER	VIB 5.991-DIS
Measurement	Measuring principle	inductive
	Measurement variable	relative displacement / expansion
	Working range Sa	3 ... 15 mm
	Output current at Sa = 0mm / max.	1.5 / 10 mA
	Linearity range Si	4.5 ... 12 mm
	Output current at Si = min / max.	2.2 / 9.1 mA
	Switching function	Current falling on approach
	Switching output	PNP / Analog
	Repeat accuracy	± 0.02 mm
	Temperature range	-10 °C ... +60 °C
Electrical	Operating voltage	10 - 30 V DC
	Rated operating voltage Ue	24 V DC
	Power / Adjustment indicator	no / no
	Short circuit / Polarity reversal prot.	yes / yes
	No-load current max. Io at Ue	10 mA
Mechanical	Housing material	Messing, vernickelt
	Sensing surface material	PA 12
	Environmental protection	IP 67
	Cable diameter D max.	4.6 mm
	Einbaubedingung	non-flush
	Tightening torque	70 Nm
	Size	M30

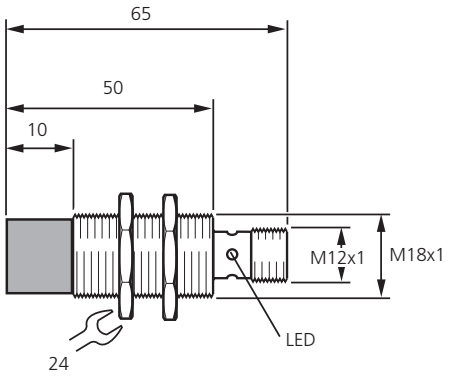
Characteristic



Connection diagram

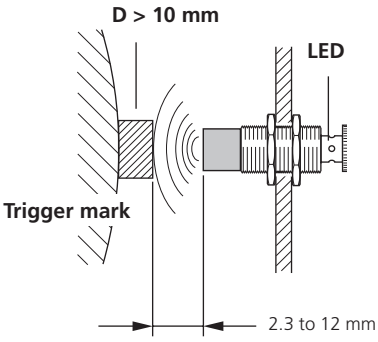


VIB 5.992-NX: Inductive RPM sensor for wind power plants incl. cable



DImensions in mm

RPM/
Trigger



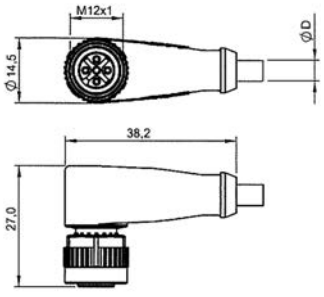
Application

The inductive RPM sensor is used in online condition monitoring systems for wind power plants (e.g. VIBROWEB XP) as a trigger sensor and for the measurement of machine RPM.

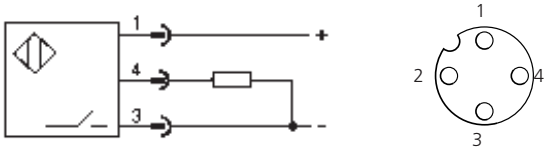
Technical data

PARAMETER		VIB 5.992-NX
Measurement	Measuring principle	Inductive
	Rated operating distance S_n	12 mm
	Assured operating distance S_a	0 ... 9.7 mm
	Repeat accuracy	5%
	Switching frequency	2500 Hz
	Switching function	Closer (NO)
	Operation display	yes
	Short-circuit protection	yes
	Reverse-connect protection	yes
	Magnetic field immune	immune to magnetic DC and AC fields
	Temperature range	-25 °C ... +70 °C
Electrical	Operating voltage	10 - 30 V DC
	Rated operating voltage Ue	24 V DC
	Effective operating current Ie	200 mA
	Voltage drop	< 2.5 V
	Off-state current	< 0.08 mA
Mechanical	Housing material	CuZn, PTFE plated
	Sensing surface material	LCP + PTFE
	Environmental protection	IP 67
	Dimensions	M18 x 1 x 65 mm (DxH)
	Tightening torque	12 Nm
	Mounting	non flush

PARAMETER		Connection cable
Cable design	Number of pins	3
	Cable length	15 m
	Cable diameter D	4.3 mm ± 0.20 mm
	Head 1 - Head 2 size	M12x1
	Coupling nut material	Zinc die cast (GD-Zn)
	Cable jacket material	PUR
General	Temperature range	-25 °C ... +80°C
	Environmental protection	IP 68
	Additional features	Drag chain compatible



Connection diagram and plug pin allocation (sensor)



Wiring and Pinout (cable)

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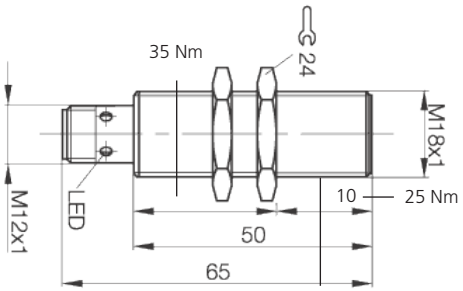
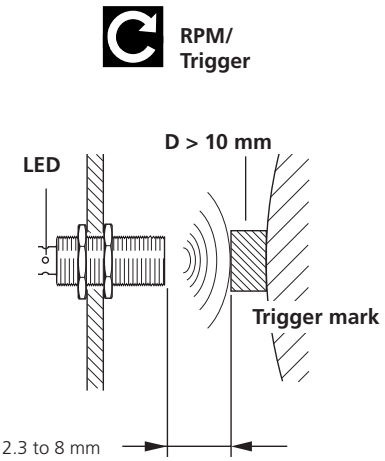
VIB 5.992-STD: Default RPM sensor for Online CMS, incl. cable





DImensions in mm

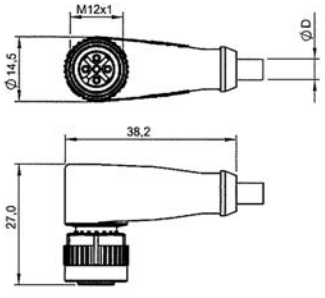
Application

The inductive RPM sensor is used in VIBGUARD, VIBNODE and VIBROWEB online condition monitoring systems as a trigger sensor and for the measurement of machine RPM.

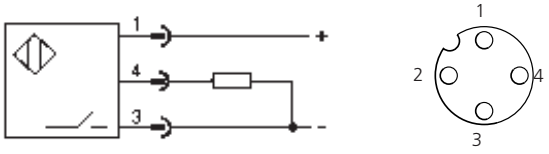
Technical data

PARAMETER		VIB 5.992-STD
Measurement	Measuring principle	Inductive
	Eff. switching distance S_r	8 mm
	Assured operating distance S_a	0 ... 6.4 mm
	Repeat accuracy (% of S_r)	5%
	Switching frequency	1000 Hz
	Switching function	Closer (NO)
	Operation display	yes
	Short-circuit protection	yes
	Reverse-connect protection	yes
	Temperature range	-25 °C ... +70 °C
Electrical	Operating voltage	10 ... 30 V DC
	Rated operating voltage Ue	24 V DC
	Effective operating current Ie	200 mA
	Voltage drop	< 2.5 V
	Off-state current	< 0.01 mA
Mechanical	Housing material	CuZn, Nickel-free coating
	Sensing surface material	PBT
	Environmental protection	IP 67
	Dimensions	M18 x 1 x 65 mm (DxH)
	Tightening torque	25 / 35 Nm
	Mounting	flush

PARAMETER		Connection cable
Cable design	Number of pins	3
	Cable length	15 m
	Cable diameter D	4.3 mm ± 0.20 mm
	Head 1 - Head 2 size	M12x1
	Coupling nut material	Zinc die cast (GD-Zn)
	Cable jacket material	PUR
General	Temperature range	-25 °C ... +80°C
	Environmental protection	IP 68
	Additional features	Drag chain compatible

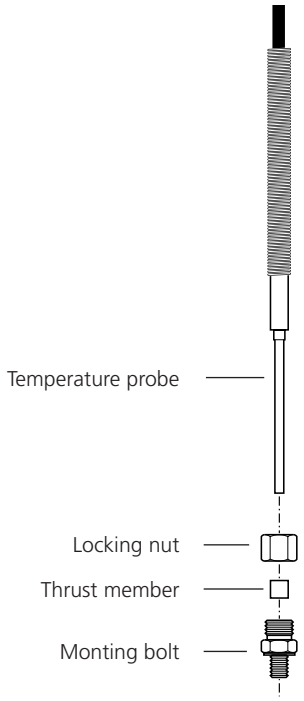


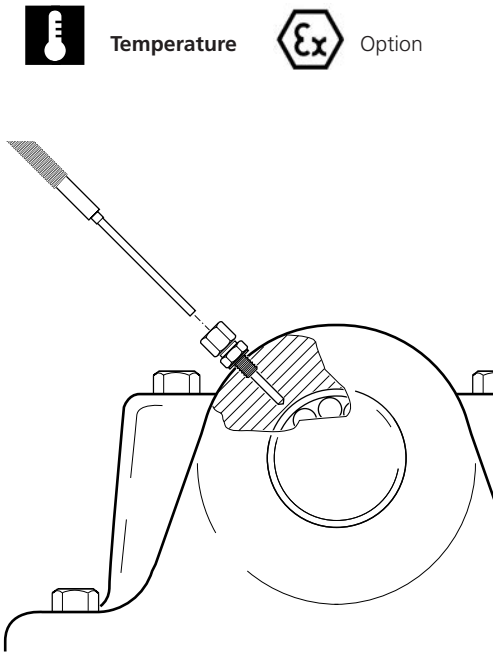
Connection diagram and plug pin allocation (sensor)



Wiring and Pinout (cable)

VIB 6.610: Temperature probe PT100 for permanent mounting





Application

The temperature sensor PT 100 is used for temperature monitoring with an online condition monitoring system.

The sensor is mounted through the machine housing with a pressure-proof threaded fitting.

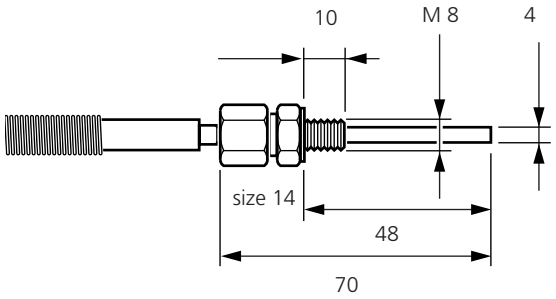
Notes on the intrinsically safe version

The PT100 temperature sensor type RL-70-40 EX of the Rössel Messtechnik GmbH company is cast in plastic and tested with 500V against earth in compliance with the manufacturer declaration. Its self heating of 32 mW at 18 mA is negligible.

Technical data

PARAMETER		VIB 6.610
Meas.	Sensor type	Pt 100 resistance thermometer
	Measurement range	0 ... +200 °C
	Limit deviation	DIN IEC 751 Kl. B
Mechanical	Material of the protective sheath	Rust- and acid-resistant steel
	Environmental protection, connector	IP 54
	Connection	Coaxial cable, 5 m long
	Dimensions	see figure

Dimensions
in mm



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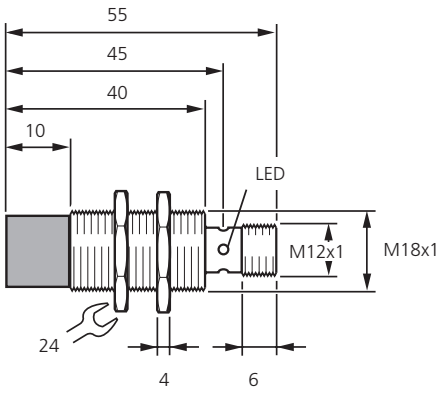
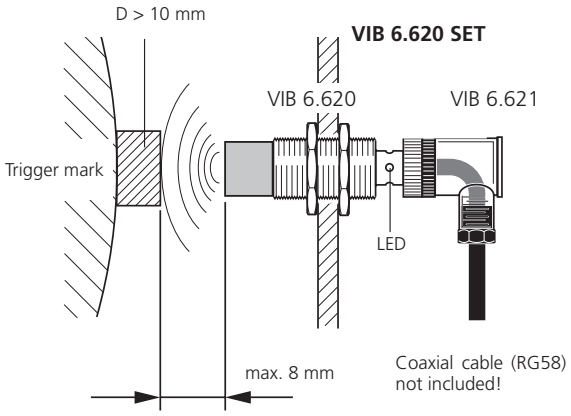
Inductive RPM sensor for VIBRONET Signalmaster (f < 300 Hz)

VIB 6.620 SET :	Inductive RPM sensor for VIBRONET Signalmaster incl. connector; (f < 300 Hz)
VIB 6.620 :	Inductive RPM sensor for VIBRONET Signalmaster w/o connector; (f < 300 Hz)
VIB 6.621 :	Connector for sensor VIB 6.620



RPM Option



Application

The sensor is used for inductive RPM measurements with the VIBRONET Signalmaster online condition monitoring system.

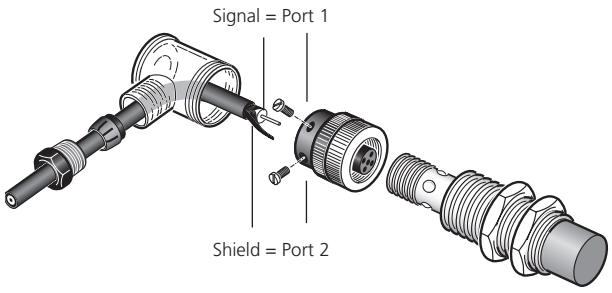
Technical data

PARAMETER		VIB 6.620
Measurement	Measuring principle	Inductive
	Rated operating distance S_n	8 mm
	Assured operating distance S_a	0 ... 6.48 mm
	Sensor type	NAMUR / opener
	Reduction factor r(V2A) / r(Al) / r(Cu)	0.72 / 0.42 / 0.4
	Switching frequency	0 ... 300 Hz
	Hysteresis H	1 ... 15 typ. 15%
	Operation display	LED, yellow
	Temperature range	-25 °C ... +100 °C
Electrical	Supply voltage	8 V DC (from RPM module)
	Current drain, meas. plate detected	≤ 1 mA
	-, meas. plate not detected	≥ 3 mA
	Short-circuit protection	yes
	Reverse-connect protection	yes
Mechanical	Installation	Non-flush
	Connection	V1 instrument connector
	Case material	Stainless steel
	Face material	PBT
	Environmental protection	IP 67
	Dimensions	see figure
EX	Operation in hazardous area	see operating instructions
	Marking	⟨Ex⟩ II 2 G EEx ia IIC T6

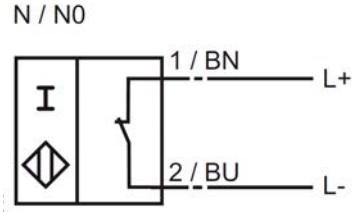
Connection

The sensor is connected to the VIBRONET field multiplexer with the RPM connector module VIB 8.313.

Cable connection, sensor side

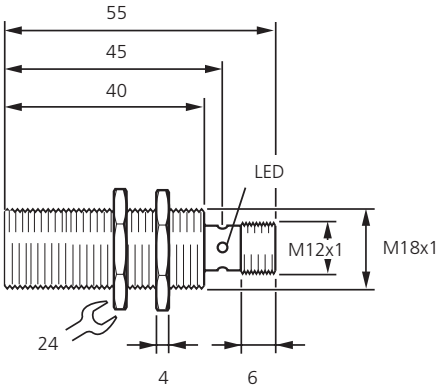


Connection diagram

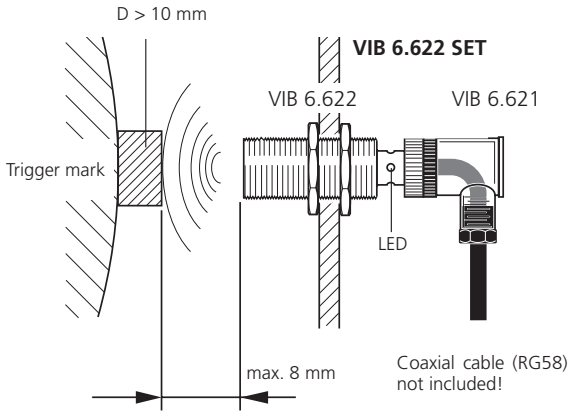


Inductive RPM sensor for VIBRONET Signalmaster (f < 1500 Hz)

VIB 6.622 SET :	Inductive RPM sensor for VIBRONET Signalmaster incl. connector; (f < 1500 Hz)
VIB 6.622 :	Inductive RPM sensor for VIBRONET Signalmaster w/o connector; (f < 1500 Hz)
VIB 6.621 :	Connector for sensor VIB 6.622



RPM Option



Application

The sensor is used for inductive RPM measurements with the VIBRONET Signalmaster online condition monitoring system.

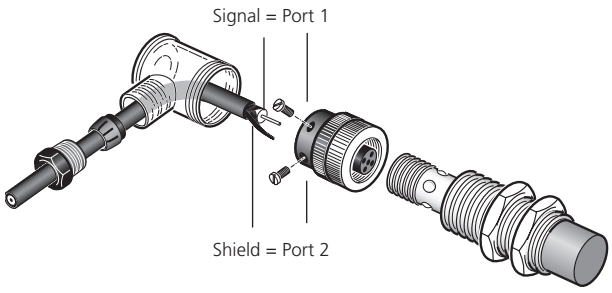
Connection

The sensor is connected to the VIBRONET field multiplexer with the RPM connector module VIB 8.313.

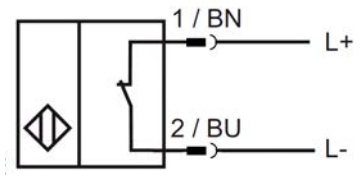
Technical data

PARAMETER		VIB 6.622
Measurement	Measuring principle	Inductive
	Rated operating distance S_n	8 mm
	Assured operating distance S_a	0 ... 6.48 mm
	Sensor type	NAMUR / opener
	Reduction factor r(V2A) / r(Al) / r(Cu)	0.71 / 0.39 / 0.36
	Switching frequency	0 ... 1500 Hz
	Hysteresis H	1 ... 15 typ. 15%
	Operation display	LED, yellow
	Temperature range	-25 °C ... +100 °C
Electrical	Supply voltage	8.2 V DC (from RPM module)
	Current drain, meas. plate detected	≤ 1 mA
	-, meas. plate not detected	≥ 2.2 mA
	Short-circuit protection	yes
	Reverse-connect protection	yes
Mechanical	Installation	flush
	Connection	M12 connector, 4 wire
	Case material	Stainless steel
	Face material	PBT
	Environmental protection	IP 67
	Dimensions	see figure
EX	Operation in hazardous area	see operating instructions
	Marking	Ex II 1 G Ex ia IIC T6 Ga

Cable connection, sensor side



Connection diagram



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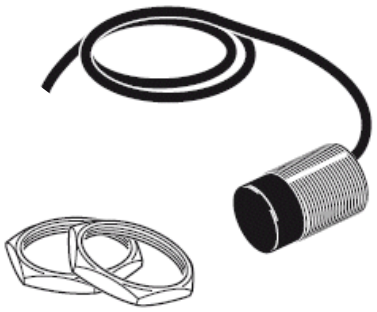
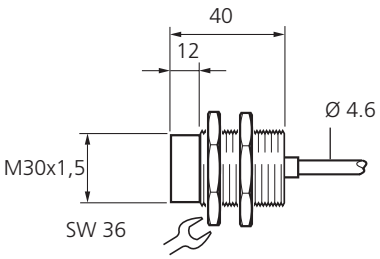
VIB 6.641: Proximity sensor for Online CMS incl. cable (3-15 mm)



Displacement



Dimensions in mm

Application

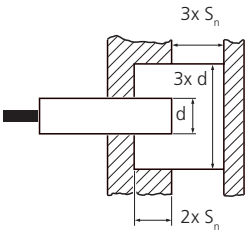
The proximity sensor is used for contact-free measuring the gap of metallic objects within the specified range (3 - 15 mm).

Function

The sensor is suitable for measurements without the highest precision requirements. The linearization of the characteristic curve is automatically done in the online condition monitoring system.

Mounting

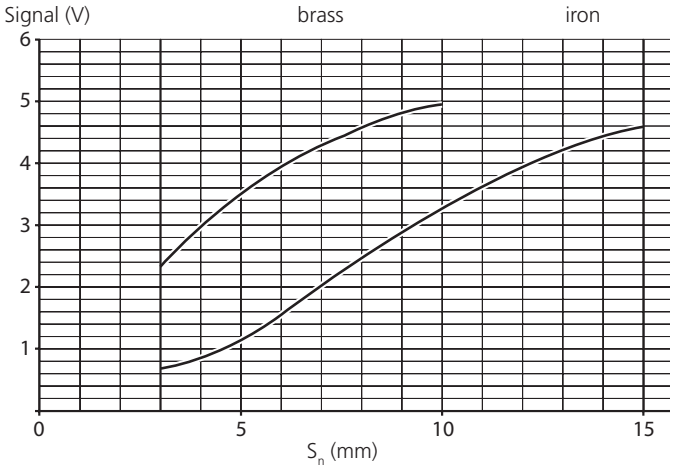
The through tapped hole enables the simple mounting and positioning of the sensor. The following notes according to EN 60947-5-2 for non-flush mounting in metal must be observed:



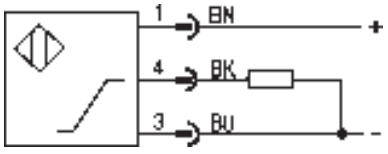
Technical data

PARAMETER		VIB 6.641
Measurement	Measuring principle	Inductive
	Measurement variable	relative displacement / expansion
	Working range S_n	3 ... 15 mm
	Linearity	≤ 5%
	Repeatability	≤ 1%
	Avarage rise	0.333 V/mm ±5%
	Max. frequency	300 Hz
	Influence Ub on Ua dU_a/dU_b	approx. 6.7% / 0.1V
	Temperature range	-25 °C ... +70 °C
	Temperature drift	±5%
Electrical	Operating voltage U_b	5 VDC, stabilized
	Operating current	≤ 15mA
	Output signal U_a	0.5 .. 4.5 VDC (see characteristic)
	Load resistance	≥ 20 kOhm
Mechanical	Case material	Nickel-plated brass
	Material of active surface	PCP
	Environmental protection	IP 67
	Installation	Non-flush
	Connection	PVC cable, 6 meters long, open end, LIYY 3x0.34mm²

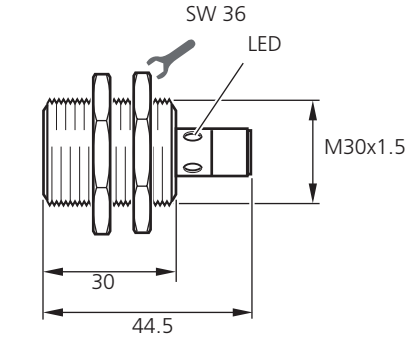
Characteristic

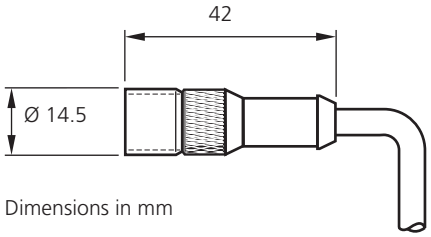


Connection diagram



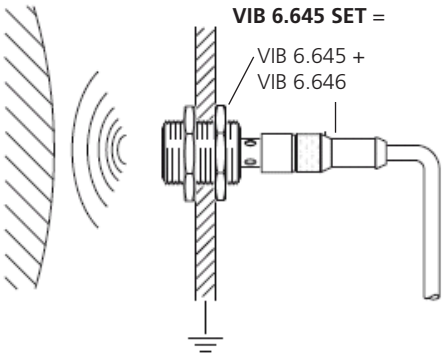
VIB 6.645 SET: Displacement sensor for Online CMS incl. cable (2-10 mm)





Dimensions in mm

Displacement



Application

This displacement sensor can determine the position of metallic objects within the specified range (2 - 10 mm).

Function

The displacement sensor is an inductive sensor that delivers a linear voltage output signal over the entire working range that is proportional to the distance from the measured object.

Mounting

The through tapped hole enables the simple mounting and positioning of the sensor. The minimum distance to the non-measured metal surface is 3 x s_e.

Accessories

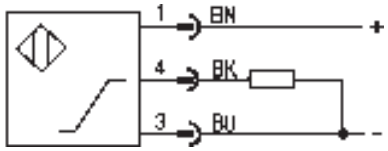
VIB 6.646 Connection cable w/ plug

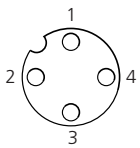
Technical data

PARAMETER		VIB 6.645 SET
Measurement	Measuring principle	Inductive
	Measurement variable	relative displacement / expansion
	Linearity range S_l	2 ... 10 mm
	Rated operating distance S_e	6 mm
	Max. non-linearity at S_e	± 3% from U_a max.
	Repeat accuracy	± 10 µm
	Max. frequency	500 Hz
	Adjusting indication	yes, LED
	Temperature range	-10 °C ... +70 °C
	Temperature drift	< 5% from U_a max.

PARAMETER		VIB 6.645 SET
Electrical	Operating voltage U_b	24 VDC
	No-load supply current	< 10 mA
	Output signal U_a	0 ... 10 VDC
	Output resistance	> 2 kOhm
Mechanical	Case material	Nickel-plated brass
	Material of active surface	PBT
	Environmental protection	IP 67
	Mounting in steel	flush
	Connection	PUR cable (10 m) + plug
	Dimensions	see figure above

Connection diagram and plug pin allocation (sensor)





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VIB 5.993-MIC: Measuring microphone , CL 1 (DIN EN 60 651)

Application
This microphone is used for noise emission measurement and analysis of disturbing noise. The microphone is designed with PRUFTECHNIK measurement devices for operational measurements.

Design
The microphone consists of a constant current powered measuring microphone preamplifier an an electret condenser microphone capsule.

Calibration
The measuring microphone can be calibrated with a sound pressure calibrator. Recommendations for appropriate calibrators are available on request.

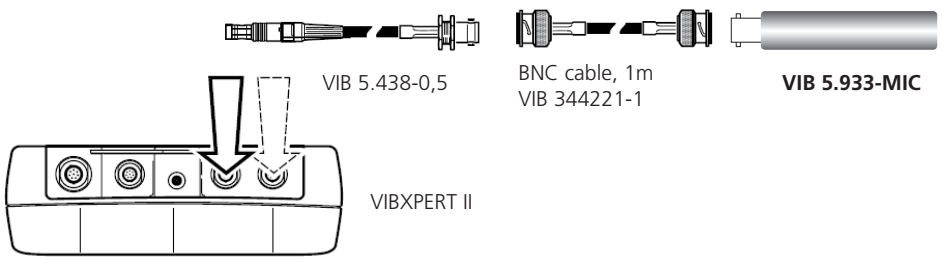
Accessories
VIB 6.632	Stand for laser trigger
VIB 5.438-0,5	Connection cable for ICP-type accelerometer, 0.5 m
VIB 344221-1	BNC cable, 1 m

Connection
The measuring microphone is connected to standard current powered measuring channels (IEPE standard / ICP).

For PRÜFTECHNIK systems the following connection configurations are provided:

- VIBXPERT II: The measuring microphone is connected to the analog input channel using the ICP cable (VIB 5.438-0,5) and an appropriate BNC cable (i.e. VIB 344221-1), see below.
- VIBNODE, VIBROWEB XP, VIBGUARD: The measuring microphone is connected to an ICP-type terminal using an appropriate BNC cable.
- VIBRONET Signalmaster: The measuring microphone is connected to the connection module for ICP-type sensors (VIB 5.812-ICP).

Connection example

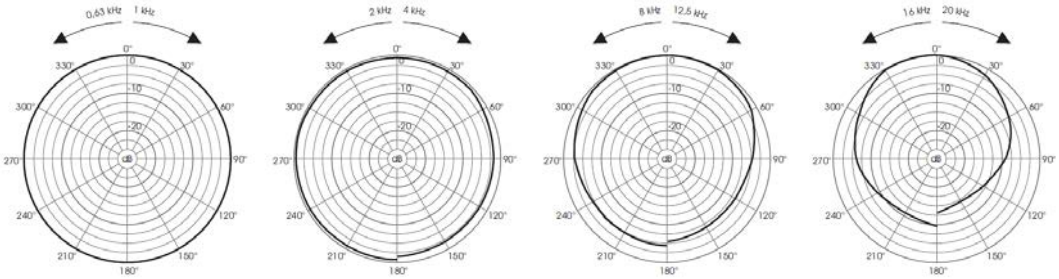


Technical data

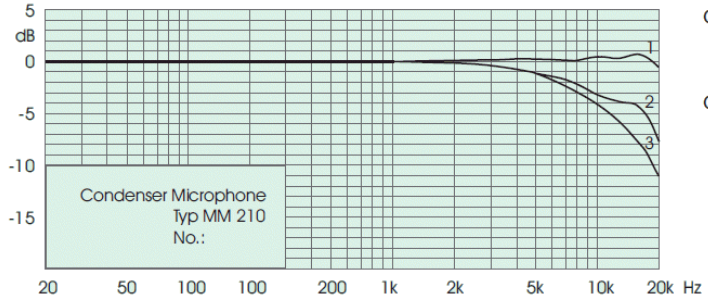
	PARAMETER	VIB 5.993-MIC
Messung	Transducer type	Capacitive pressure transducer
	Sensitivity *	50 mV/Pa
	Correction free-field for 1 kHz	0 dB
	Random incidence at 1 kHz	0 dB
	Principal axis	Microphone axis
	Frequency range free-field response *	3,5 Hz ... 20 kHz, CL 1 DIN EN 60 651
	Polarization voltage	0 V
	Capacitance at 1 kHz *	19 pF
	Max. SPL for THD ≤ 3% at 1 kHz	135 dB
	Output voltage, K=3%	≥ 6.5 V_{eff}
	Output impedance	< 100 Ohm
	Nom. load impedance	100 kOhm
	Current consumption	2 ... 10 mA
	Transducer excitation	U_L 24 ... 30 VDC
	Time for power up	1 minute
	Equivalent loudness level	15 dB A
	Influence of magnetic field 80A/m, 50 Hz	< 22 dB
	Influence of vibration, 1m/s², 20 Hz .. 1 kHz	60 dB
Allgemein	Operating temperature range, < ±0.5 dB	-20°C ... +65°C
	Main ambient temperature coefficient	≤ 0.01 dB/K
	Main ambient pressure coefficient	-1x10^{-5} dB/Pa
	Influence of relative humidity, 30% to 90%	< 0.1 dB
	Temperature limits	- 50°C ... +100°C
	Humidity limits	r.H < 100%; absence of condensation
	Diameter	12.7 mm
	Length	97 mm
	Weight	45 g
	Plug	BNC

* individually calibrated, see calibration certificate

Polar patterns



Frequency response (calibration certificate)



Calibrationn Chart

Sensitivity S:	-27,2 dB re 1 V/Pa
equivalent to:	43,6 mV/Pa
Cartridge Capacitance:	15,0 pF

Calibrationn Conditions

Polarization Voltage:	0 V
Ambient Static Pressure:	96,1 kPa
Ambient Temperature:	23 °C
Relative Humidity:	67 %

1 Zero Degree Incidence
2 Random Incidence
3 Actuator Pressure Response

Date: Signature:

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VIB 6.411 SET: WEARSCANNER set with switching output

VIB 6.411

VIB 9.840

VIB 6.421

VIB 6.425

Application

WEARSCANNER is used to detect, count and evaluate electrically conductive particles in lubricating oil circuits.

Scope of delivery

VIB 6.411 WEARSCANNER particle counter w/ switching output

VIB 6.421 M12 connector (for power supply and data line, 8 pins)

VIB 6.425 M12 connector (for switching output, 5 pins)

VIB 9.840.G Installation and operating instructions

Accessories

VIB 6.420-L Connection cable for power supply and data transmission, assembled with M12 connector (VIB 6.421), L meters long (max. 20 m).

VIB 6.426-L Connection cable for switching output, assembled with M12 connector (VIB 6.425), L meters long (max. 20 m).

VIB 6.430 WEARSCANNER utility. Free software tool for commissioning and maintenance of the WEARSCANNER sensor can be downloaded from the PRÜFTECHNIK homepage.

Description

The WEARSCANNER is a sensor that detects electrically conductive particles in the medium that passes through it. The WEARSCANNER has the following features:

- Size-based counting and classification of particles
- Size classes are adjustable as specified in ISO 16232
- Continuous operation with integrated signal processing
- Suitable for lubricating oils
- Records oil temperature
- Temperature range: -20°C to +80 °C (+60°C, no flow)
- Large permissible flow rate range
- Many measurement functions customizable to machine and application, such as:
  - Threshold
  - Measurement time window
  - Electronic filter
  - Averaging
  - Gain etc.
- Internal ring memory for measurement data recording
- Persistent log file for the documentation of setting changes
- Modbus TCP communication
- Additional switching output as an option
- Network capability through its own IP address
- Switching output for signaling particle quantity exceeding
- Alive switching output for signaling system faults
- Self-monitoring
- Overload protection
- Maintenance-free

Technical data

PARAMETER		VIB 6.411
Measurement	Measuring method	Eddy current, differential coil principle
	Particles	Ferritic or non-ferritic
	Particle size	Three size classes are set by default; up to 8 size classes can be set
	Signal processing	Particle distribution counter with integral average determination and classification
	Mean flow velocity	0.01 m/s ... 5 m/s
	Mean flow rate	0.08 l/min. ... 39 l/min.
	Oil types	Mineral, synthetic, biodegradable
	Oil pressure	Max. 16 bar operating pressure / 30 bar burst pressure
	Temperature range	Ambient: -20°C ... +80°C; -20°C ... +60°C (no flow) Oil: -20°C ... +80°C
Electrical	Power supply, Voltage	24 VDC (21 V … 30 V)
	-, Current consumption	approx. 400 mA at 24 V
	-, Power consumption	approx. 9.6 W
	Switching capacity, switching output	24 VDC (max. 30 V) / 0.2 A (max., perm. load)
	-, alive output	24 VDC (max. 30 V) / 0.2 A (max., perm. load)
	Overload protection	Integrated
	Connector, Power supply / LAN	Male socket M12, 8 pins
	-, switching output / alive output	Male socket M12, 5 pins
	Permitted common-mode voltage	max. 50 V (housing / ground)
Data	Interface	Ethernet, 100 Mbit/s
	Protocols	TCP/IP, Modbus-TCP
	Internal memory	64 MB, sufficient for data-storage period from about 150 days to 10 years, depending on the data logger time interval
	Display	System signal LED 1: green = ready, rot = fault Operat. signal LED 2: Orange = particles passing through, Red = overload (particles too big/many, offset voltage too high)
	Self-monitoring	Integrated
Mechanical	Housing material	Stainless steel 1.4308 (salt water resistant)
	Fitting dimensions	2 x G 1/2" (Whitworth pipe thread DIN ISO 228)
	Sensor tube diameter	approx. 13 mm
	IP rating	IP 65
	Weight	approx. 3.5 kg
	Maintenance	No moving parts, maintenance-free
	Dimensions, WEARSCANNER	approx. 170 x 86 x 102 mm³ (L x W x H)
	Dimensions, mounting base (mounted upon delivery)	approx. 137 x 110 x 3 mm³ (L x W x H)

Particle size classes

(ISO 16232)

Size classes covered by the WEARSCANNER

Klasse	B	C	D	E*	F*	G*	H	I	J	K
Größe	5 – 15 µm	15 – 25 µm	25 – 50 µm	50 – 100 µm	100 – 150 µm	150 – 200 µm	200 – 400 µm	400 – 600 µm	600 – 1000 µm	>1000 µm

* Classes E, F, G only with appropriate configuration

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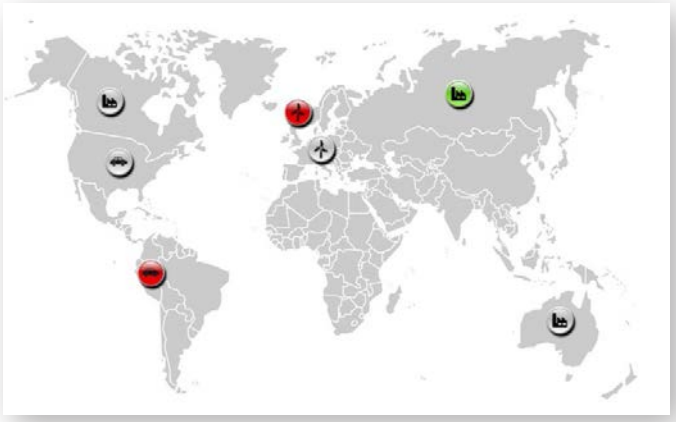
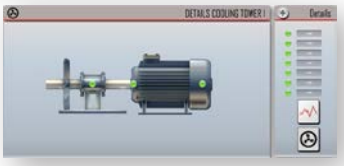
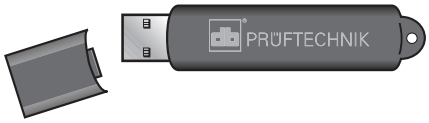
Online VIEW 4.0 - Visualization software for Online CMS

VIB 8.170:	Online VIEW 4.0 for up to 100 data points
VIB 8.171:	Online VIEW 4.0 for up to 250 data points
VIB 8.172:	Online VIEW 4.0 for up to 500 data points
VIB 8.173:	Online VIEW 4.0 for up to 1000 data points







VIB 8.140-USB

Application

This web-based software is used for online visualization of machine condition data that is collected with PRUFTECHNIK online CMS* and provided via Modbus TCP. The data is displayed in real time on a PC or mobile devices.

Online VIEW 4.0 runs in a current browser, where the monitored assets, machines and the relevant status information are presented clearly and attractively.

Scope of supply:
VIB 8.140-USB Online VIEW 4.0 USB pendrive

Note

The individual software packages are available based on the required data points. A data point corresponds to a Modbus address, i.e. a characteristic overall value, or an alarm, or a warning is one data point.

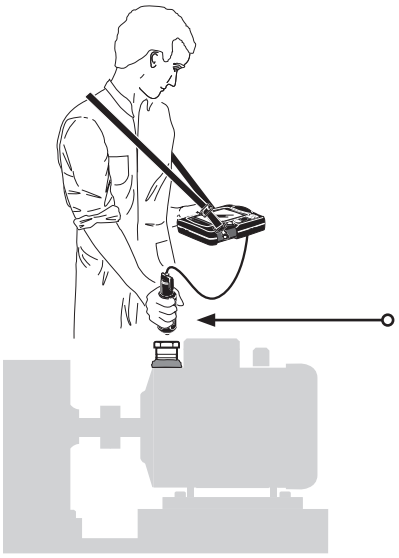
* CMS: Condition Monitoring System

Overview

- Client-Server application
- No additional client software required, web browser with Silverlight plug-in is sufficient.
- Visualization on mobile devices as an option
- Configuration and commissioning done by PRÜFTECHNIK
- User interface in more than 150 languages
- Visualization of three levels (asset, machine train, machine) plus status overview
- Status overview with traffic light function
- Several display options for data visualization (bar chart, digital meters, analog instrument)
- Historical data and live data, each as a trend
- Compatible online CMS:
  - **WEARSCANNER**
  - **VIBGUARD**
  - VIBNODE
  - VIBROWEB
  - VIBROWEB XP
  - VIBCONNECT RF

Chapter 2
Sensors for mobile data collection

Contents : Sensors for mobile data collection



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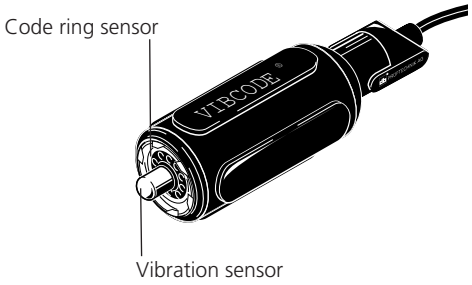
VIBCODE transducer with automatic location identification

VIB 8.660 VS : VIBCODE transducer for VIBSCANNER and VIBXPERT

VIB 8.660 VD : VIBCODE transducer for VIBROTIP



Vibration acceleration

Bearing condition

Pump cavitation

Description

VIBCODE is the world's first vibration measurement system that uses coded measurement studs for certain identification of measurement locations on the machine. The system consists of the VIBCODE transducer and the VIBCODE measurement stud.

The VIBCODE transducer contains a code ring sensor and a vibration sensor. The transducer locks onto the VIBCODE stud via bayonet mount in optimum position and with consistent pressure. Trend readings are taken with perfect repeatability regardless of operator qualification and training. The code ring sensor reads the tooth pattern of the plastic ring in the measurement stud to determine its location so that the correct types of measurement can be taken. Mix-ups, erroneous trend deviations and time-consuming repeat measurements are all eliminated once and for all.

Application

The signal acquisition and processing is carried out with a PRÜFTECHNIK data collector (e.g. VIBSCANNER, VIBXPERT II, VIBROTIP).

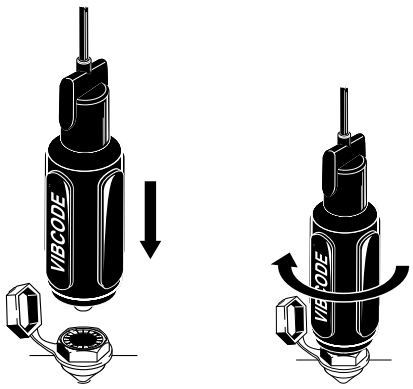
Spare parts

VIB 8.660	VIBCODE transducer w/o cable
VIB 8.691	Dust cap for VIBCODE transducer

Accessories

VIB 8.679 SET	Meas. stud, M8, stainless steel
VIB 8.680 SET	Meas. stud, M8, high qual. stainless steel
VIB 8.689 SET	Meas. stud, UNC 5/16, hq. stainless steel
VIB 8.690 SET	Meas. stud, UNC 5/16, stainless steel
VIB 8.571..73	Meas. studs w/ counter nut, M8
VIB 8.594..96	Meas. studs w/ counter nut, UNC 5/16
VIB 8.576..78	Meas. studs w/ extension post, M8
VIB 8.580..82	Meas. studs w/ extension post, UNC 5/16
VIB 8.685	Meas. stud for adhesive mounting

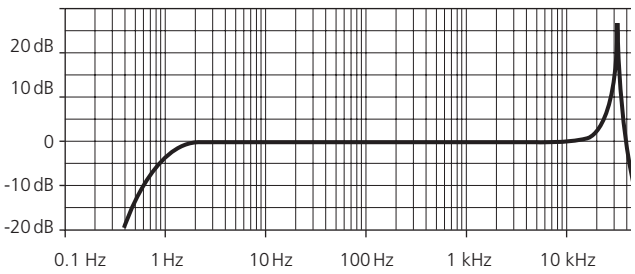
Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).



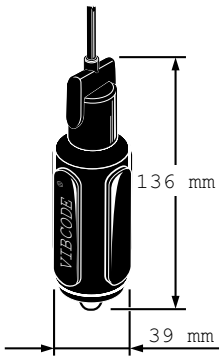
Technical data

PARAMETER		VIB 8.660 VS	VIB 8.660 VD
Measurement	Signaling system	Current Line Drive; 3.5 mA closed current w/ superposed AC signal	
	Transmission factor ± 2%	1.0 µA/ms $^{-2}$ (Ref.: 159 Hz; 25 °C)	
	Frequency range ± 10%	2 Hz ... 10 kHz	
	± 3dB	1.5 Hz ... 20 kHz	
	Resonance frequency	36 kHz	
	Linearity range ± 10%	± 50 ms^{-2} (±5g)	
	Temperature range	-10 °C ... +70 °C	
Electrical	Power requirements	> 10 mA / 7-18 VDC	
	Temperature sensitivity	< 0.3 ms^{-2}/K	
	Transverse sensitivity	< 10% of axial value	
	Magnetic sensitivity	< 14 ms^{-2}/T (at 50 Hz)	
	Electrical noise, rms	< 1 mms^{-2} / Hz$^{1/2}$ at 10 Hz	
	Output impedance	> 500 kOhm	
Mechanical	Environmental protection	IP 65	
	Weight	390 g	
	Dimensions	136 mm x 39 mm (H x D)	
	Mounting	Adapters for VIBCODE transducer	
	Connection cable	VIB 5.436, VIB 5.437-2,9 / -5	VIB 4.704-2 / -5

Frequency response



Dimensions



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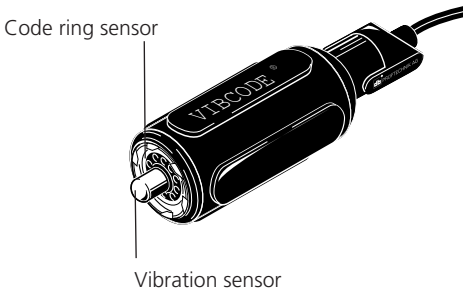
VIBCODE transducer with automatic location identification, intrinsically safe

VIB 8.660 XVS : VIBCODE transducer with intrinsic safety for VIBSCANNER EX and VIBXPERT EX

VIB 8.660 XVD : VIBCODE transducer with intrinsic safety for VIBROTIP EX and VIBTOOL



Vibration acceleration

Bearing condition

Pump cavitation

CE 0044

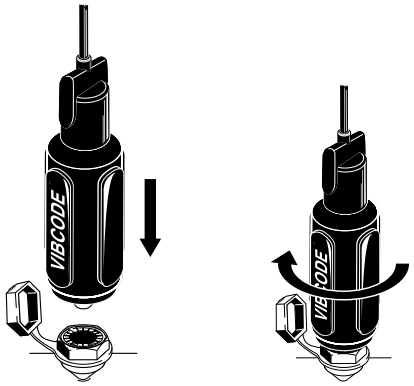
Description

VIBCODE is the world's first vibration measurement system that uses coded measurement studs for certain identification of measurement locations on the machine. The system consists of the VIBCODE transducer and the VIBCODE measurement stud.

The VIBCODE transducer contains a code ring sensor and a vibration sensor. The transducer locks onto the VIBCODE stud via bayonet mount in optimum position and with consistent pressure. Trend readings are taken with perfect repeatability regardless of operator qualification and training. The code ring sensor reads the tooth pattern of the plastic ring in the measurement stud to determine its location so that the correct types of measurement can be taken. Mix-ups, erroneous trend deviations and time-consuming repeat measurements are all eliminated once and for all.

Application

The intrinsically safe VIBCODE transducer is mainly used for data collection in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBXPERT EX, VIBROTIP EX, VIBTOOL).



Notes on intrinsic safety

The VIBCODE transducer of the series VIB 8.660 HEX may only be connected to designated devices with the following interface parameters:

U_{max} = 30 V
I_{max} = 63 mA
P_{max} = 300 mW
C_i = 347 nF
L_i = negligible small

The details in the EC type examination certificate TÜV 02 ATEX 1890 and the 1st supplement dated from 31.10.2008 must be considered.

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Spare parts

VIB 8.660 HEX	VIBCODE EX for VIBXPERT EX and VIBSCANNER EX w/o cable
VIB 8.691	Dust cap VIBCODE transducer

Accessories

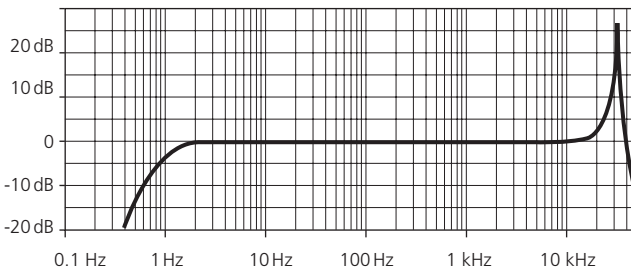
VIB 8.679 SET	Meas. stud, M8, stainless steel
VIB 8.680 SET	Meas. stud, M8, high qual. stainless steel
VIB 8.689 SET	Meas. stud, UNC 5/16, hq. stainless steel
VIB 8.690 SET	Meas. stud, UNC 5/16, stainless steel
VIB 8.571..73	Meas. studs w/ counter nut, M8
VIB 8.594..96	Meas. studs w/ counter nut, UNC 5/16
VIB 8.576..78	Meas. studs w/ extension post, M8
VIB 8.580..82	Meas. studs w/ extension post, UNC 5/16
VIB 8.685	Meas. stud for adhesive mounting

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

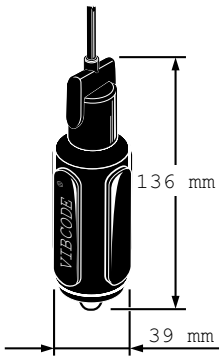
Technical data

PARAMETER		VIB 8.660 XVS	VIB 8.660 XVD
Measurement	Signaling system	Current Line Drive; 3.5 mA closed current w/ superposed AC signal	
	Transmission factor ± 2%	1.0 µA/ms $^{-2}$ (Ref.: 159 Hz; 25 °C)	
	Frequency range ± 10%	2 Hz ... 10 kHz	
	± 3dB	1.5 Hz ... 20 kHz	
	Resonance frequency	36 kHz	
	Linearity range ± 10%	± 50 ms^{-2} (±5g)	
	Temperature range	-10 °C ... +70 °C	
Electrical	Power requirements	> 10 mA / 7-18 VDC	
	Temperature sensitivity	< 0.3 ms^{-2}/K	
	Transverse sensitivity	< 10% of axial value	
	Magnetic sensitivity	< 14 ms^{-2}/T (at 50 Hz)	
	Electrical noise, rms	< 1 mms^{-2} / Hz$^{1/2}$ at 10 Hz	
	Output impedance	> 500 kOhm	
Mechanical	Environmental protection	IP 65	
	Weight	390 g	
	Dimensions	136 mm x 39 mm (H x D)	
	Mounting	Adapters for VIBCODE transducer	
	Connection cable	VIB 5.436, VIB 5.437-2,9 / -5	VIB 4.704-2 / -5
EX	Marking, explosion protect.	Ex II 2 G Ex ib IIC T4	

Frequency response



Dimensions



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VIB 6.142 R: Mobile industrial accelerometer for standard machinery (n > 600 min^{-1})

M5 thread

Vibration acceleration

Bearing condition

Pump cavitation

Application

This accelerometer is suitable for vibration measurements up to 20 kHz on machinery with rotational speeds above 600 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The accelerometer is mainly used for data collection in an industrial environment. The signal acquisition and processing is carried out with a PRÜFTECHNIK data collector (e.g. VIBSCANNER, VIBXPERT II, VIBROTIP).

Technical data

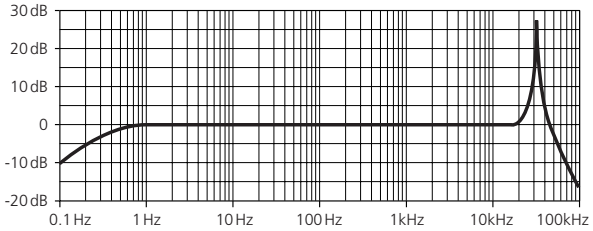
PARAMETER			VIB 6.142 R
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal
	Transmission factor	± 3%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 5%	2 Hz ... 8 kHz
		± 10%	1 Hz ... 20 kHz
		± 3dB	0.3 Hz..20 kHz
	Resonance frequency		36 kHz
	Linearity range	± 10%	± 961 ms^{-2}
	Temperature range		-30 °C ... +100 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 10 kHz
	Temperature sensitivity		< 0.05 ms^{-2}/K
	Magnetic sensitivity		< 5 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.1 ms^{-2}/µm/m
	Electrical noise, rms		< 0.01 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
	Insulation		> 10^{9} MOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Cable connection		TNC socket
	Shock limit		< 250 kms^{-2}
	Weight		39 g
	Mounting		Adapter, probe tip

Installation accessories

VIB 3.420	Magnetic holder for curved surfaces
VIB 3.422	Magnetic holder for flat surfaces
VIB 3.430	Adapter for adhesive mounting
VIB 3.435	Screwed adapter, M5-flat to M5-120°
VIB 3.436	Screwed adapter, M5-flat to M6-90°
VIB 3.440	Screwed adapter, M5-flat to M8-90°
VIB 3.441	Screwed adapter, M5-flat to UNC5/16-90°
VIB 3.450	Probe tip for accelerometer type VIB 6.14x

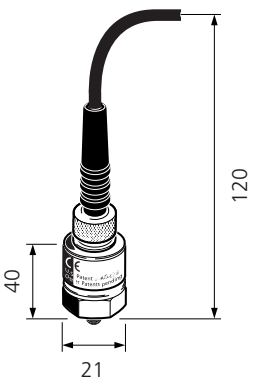
Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Frequency response
Threaded or adhesive mounting



Linear frequency range is limited with
- Magnetic holder: ≤ 5...20 kHz
- Probe tip: ≤1 kHz

Dimensions



Dimensions in mm

VIB 6.147: Mobile industrial accelerometer for low-speed machinery (n > 120 min^{-1})

M5 thread

Vibration acceleration

Application

This accelerometer is suitable for vibration measurements up to 10 kHz on low-speed machinery with rotational speeds above 120 min^{-1}. High frequency shock pulse measurements for bearing condition evaluation and pump cavitation are not possible with this series.

The accelerometer is mainly used for data collection in an industrial environment. The signal acquisition and processing is carried out with a PRÜFTECHNIK data collector (e.g. VIBSCANNER, VIBXPERT II, VIBROTIP).

Installation accessories

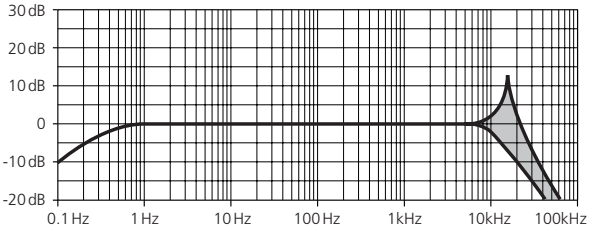
VIB 3.420	Magnetic holder for curved surfaces
VIB 3.422	Magnetic holder for flat surfaces
VIB 3.430	Adapter for adhesive mounting
VIB 3.435	Screwed adapter, M5-flat to M5-120°
VIB 3.436	Screwed adapter, M5-flat to M6-90°
VIB 3.440	Screwed adapter, M5-flat to M8-90°
VIB 3.441	Screwed adapter, M5-flat to UNC5/16-90°
VIB 3.450	Probe tip for accelerometer type VIB 6.14x

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Technical data

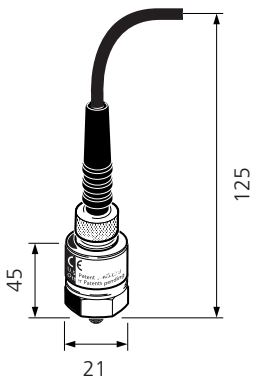
PARAMETER			VIB 6.147
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal
	Transmission factor	± 4%	5.35 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 5%	2 Hz ... 4 kHz
		± 10%	1 Hz ... 8 kHz
		± 3dB	0.3 Hz..12 kHz
	Resonance frequency		17 kHz; > 20 dB damped
	Linearity range	± 10%	± 450 ms^{-2}
	Temperature range		-30 °C ... +100 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 5 kHz
	Temperature sensitivity		< 0.01 ms^{-2}/K
	Magnetic sensitivity		< 1 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.01 ms^{-2}/µm/m
	Electrical noise, rms		< 0.002 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
	Insulation		> 10^{9} MOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Cable connection		TNC socket
	Shock limit		< 50 kms^{-2}
	Weight		38 g
	Mounting		Adapter, probe tip

Frequency response
Threaded or adhesive mounting



Linear frequency range is limited with
- Magnetic holder: ≤ 5 kHz
- Probe tip: ≤1 kHz

Dimensions



Dimensions in mm

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VIB 6.142 DEX: Mobile industrial accelerometer for standard machinery (n > 600 min^{-1}), intrinsically safe

M5 thread

Vibration acceleration

Bearing condition

Pump cavitation

0044

Application

This accelerometer is suitable for vibration measurements up to 20 kHz on machinery with rotational speeds above 600 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The accelerometer is mainly used for data collection in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBXPERT EX, VIBROTIP EX, VIBTOOL).

The accelerometer is gas and dust explosion-proof. It is suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.1xx DEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

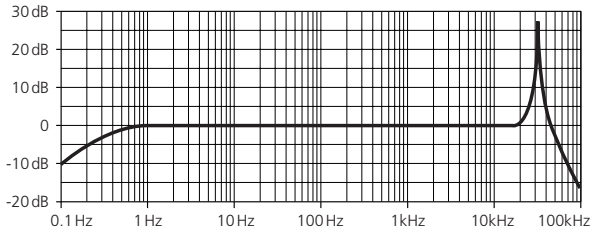
VIB 3.420	Magnetic holder for curved surfaces
VIB 3.422	Magnetic holder for flat surfaces
VIB 3.430	Adapter for adhesive mounting
VIB 3.435	Screwed adapter, M5-flat to M5-120°
VIB 3.436	Screwed adapter, M5-flat to M6-90°
VIB 3.440	Screwed adapter, M5-flat to M8-90°
VIB 3.441	Screwed adapter, M5-flat to UNC5/16-90°
VIB 3.450	Probe tip for accelerometer type VIB 6.14x

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Technical data

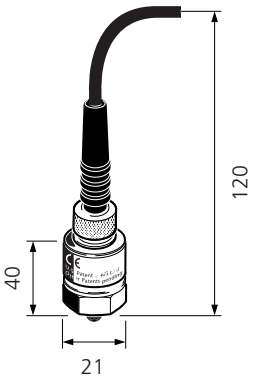
	PARAMETER		VIB 6.142 DEX
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal
	Transmission factor	± 3%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 5%	2 Hz ... 8 kHz
		± 10%	1 Hz ... 20 kHz
		± 3dB	0.3 Hz..20 kHz
	Resonance frequency		36 kHz
	Linearity range	± 10%	± 961 ms^{-2}
	Temperature range		-30 °C ... +80 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 10 kHz
	Temperature sensitivity		< 0.05 ms^{-2}/K
	Magnetic sensitivity		< 5 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.1 ms^{-2}/µm/m
	Electrical noise, rms		< 0.01 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
	Insulation		> 10^{9} MOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Cable connection		TNC socket
	Shock limit		< 250 kms^{-2}
	Weight		39 g
	Mounting		Adapter, probe tip
EX	Marking, gas explosion protection		Ⓔx II 2 G Ex ib IIC T4
	Marking, dust expl. protection		Ⓔx II 2 D Ex ib IIIB T$_5$187°C

Frequency response
Threaded or adhesive mounting



Linear frequency range is limited with
- Magnetic holder: ≤ 5...20 kHz
- Probe tip: ≤1 kHz

Dimensions



Dimensions in mm

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VIB 6.147 DEX: Mobile industrial accelerometer for low-speed machinery (n > 120 min^{-1}), intrinsically safe

M5-Schraubgewinde

Vibration acceleration

0044

Application

This accelerometer is suitable for vibration measurements up to 10 kHz on low-speed machinery with rotational speeds above 120 min^{-1}. High frequency shock pulse measurements for bearing condition evaluation and pump cavitation are not possible with this series.

The accelerometer is mainly used for data collection in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBXPERT EX, VIBROTIP EX, VIBTOOL).

The accelerometer is gas and dust explosion-proof. It is suitable for use with dusts having a minimum ignition temperature for 5 mm layers of not less than 210 °C.

Notes on intrinsic safety

The accelerometers of the series VIB 6.1xx DEX may only be connected to designated devices with the following interface parameters:

U_{max} = 24V
P_{max} = 300mW
C_i = 15nF
L_i = negligible small

The following documents must be considered:

- EC type examination certificate TÜV 02 ATEX 1865
- 1st supplement dated from 01.03.2007
- 2nd supplement dated from 22.06.2011

Additionally the installation notes for hazardous areas annexed in this catalog must be observed.

Installation accessories

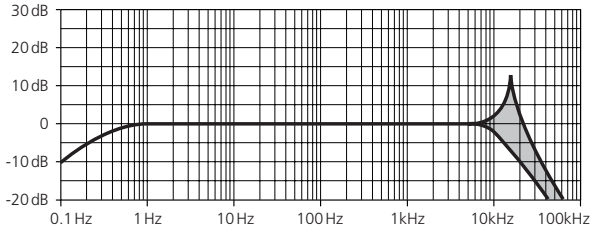
VIB 3.420	Magnetic holder for curved surfaces
VIB 3.422	Magnetic holder for flat surfaces
VIB 3.430	Adapter for adhesive mounting
VIB 3.435	Screwed adapter, M5-flat to M5-120°
VIB 3.436	Screwed adapter, M5-flat to M6-90°
VIB 3.440	Screwed adapter, M5-flat to M8-90°
VIB 3.441	Screwed adapter, M5-flat to UNC5/16-90°
VIB 3.450	Probe tip for accelerometer type VIB 6.14x

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Technical data

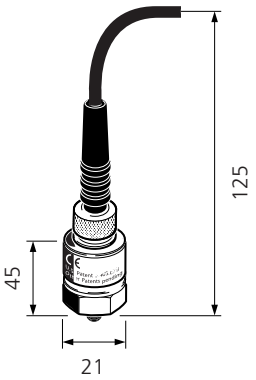
PARAMETER			VIB 6.147 DEX
Measurement	Signaling system		Current LineDrive, 3.5 mA closed current with superposed AC signal
	Transmission factor	± 4%	5.35 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 5%	2 Hz ... 4 kHz
		± 10%	1 Hz ... 8 kHz
		± 3dB	0.3 Hz..12 kHz
	Resonance frequency		17 kHz; > 20 dB damped
	Linearity range	± 10%	± 450 ms^{-2}
	Temperature range		-30 °C ... +80 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 10 kHz
	Temperature sensitivity		< 0.01 ms^{-2}/K
	Magnetic sensitivity		< 1 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.01 ms^{-2}/µm/m
	Electrical noise, rms		< 0.002 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
	Insulation		> 10^9 MOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Cable connection		TNC socket
	Shock limit		< 50 kms^{-2}
	Weight		388 g
	Mounting		Adapter, probe tip
EX	Marking, gas explosion protection		Ⓔx II 2 G Ex ib IIC T4
	Marking, dust expl. protection		Ⓔx II 2 D Ex ib IIIB $T_5$187°C

Frequency response
Threaded or adhesive mounting



Linear frequency range is limited with
- Magnetic holder: ≤ 5 kHz
- Probe tip: ≤1 kHz

Dimensions



Dimensions in mm

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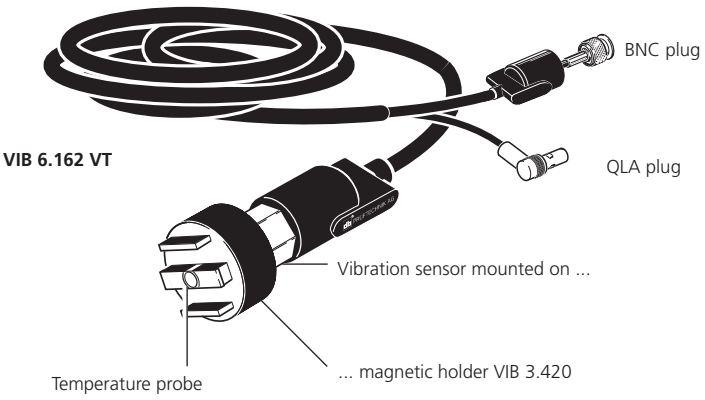
Dual sensor for vibration and temperature measurement, intrinsically safe

VIB 6.162 VD :	Dual sensor for vibration and temperature measurement with VIBSCANNER EX / VIBXPERT EX
VIB 6.162 VT :	Dual sensor for vibration and temperature measurement with VIBTOOL



Vibration acceleration

Temperature

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Application

The dual sensor is suitable for vibration measurements up to 2 kHz and temperature measurements in the specified range. High frequency shock pulse measurements for bearing condition evaluation and pump cavitation are not possible with this sensor.

The dual sensor is mainly used for data collection in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBXPERT EX, VIBROTIP EX, VIBTOOL).

Installation

The dual sensor has a magnetic holder to affix it securely to ferromagnetic measurement locations - including on curved surfaces.

Notes

During transport / storage a steel washer as a short-circuit rail is mounted on the pole pieces.

The safety data sheet is available upon request (info@pruftechnik.com) or in the Internet (www.pruftechnik.com).

Notes on intrinsic safety

The dual sensor VIB 6.162.. consists of:
Mobile industrial accelerometer (intrinsically safe) VIB 6.142 DEX incl. coaxial cable and connector,
NiCrNi thermo couple incl. cable, connector and magnetic holder in which the thermal element is embedded.
The cables are bundled and the accelerometer is equipped with a protective cap. The assembled measuring device does not require a separate type examination certificate as the parts mounted on the vibration sensor are simple electrical devices in compliance with EN60079-11:2007: 5.7

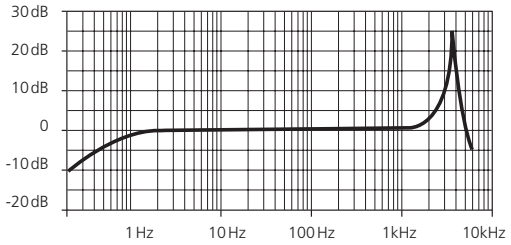
Spare part

VIB 3.420 Magnetic holder for curved surfaces

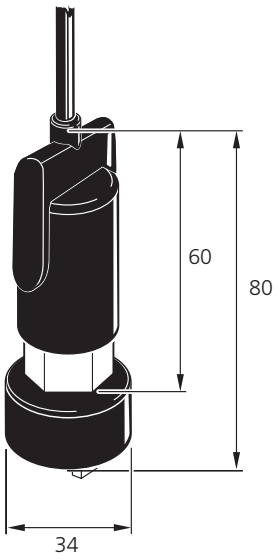
Technical data

PARAMETER			VIB 6.162 VD	VIB 6.162 VT
Measurement, vibration	Signaling system		Current Line Drive; 3.5 mA closed current with superposed AC signal	
	Transmission factor	± 5%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)	
	Frequency range	± 10%	2 Hz ... 2 kHz	
	Resonance frequency		3.7 kHz	
	Linearity range	± 10%	± 961 ms^{-2} (± 98 g)	
	Temperature range, in hazard. area		-30 °C ... +80 °C	
	-, outside hazardous area		-30 °C ... +100 °C	
Electrical, vibration	Power requirement		> 3.5 mA / 7-18 VDC	
	Temperature sensitivity		< 0.05 ms^{-2}/K	
	Magnetic sensitivity		< 5 ms^{-2}/T (at 50 Hz)	
	Electrical noise, rms		< 0.01 ms^{-2} from 2 Hz	
	Output impedance		> 300 kOhm	
	Insulation		> 10^{9} MOhm	
Temp. sensor	Measuring system		NiCrNi	
	Transmission factor		41 µV/K	
	Accuracy		± 6% from meas. value	
	Measurement range		-30°C ... +100°C	
Mechanical	Case material	Accelerometer	Stainless steel VA 1.4305	
		Magnetic holder	PA6	
	Environmental protection		IP 65 (w/ cable)	
	Connection		1x QLA, 1x MiniSnap	1x QLA 1x BNC
	Shock limit		< 250 kms^{-2}	
	Weight		155 g	
	Mounting		Magnetic holder	
EX	Marking, gas explosion protection		Ⓔx II 2 G Ex ib IIC T4, T_a80°C	
	Marking, dust explosion protection		Ⓔx II 2 D Ex ib IIIB $T_5$187°C, T_a80°C	

Frequency response
magnetic coupling



Dimensions
in mm



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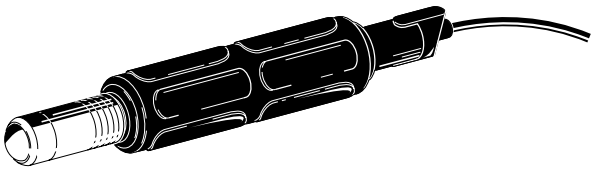
TIPTECTOR handheld probe set for mobile vibration measurements

VIB 8.606 VS :	TIPTECTOR handheld probe set for VIBSCANNER and VIBXPERT
VIB 8.606 VD :	TIPTECTOR handheld probe set for VIBROTIP



Vibration acceleration

Bearing condition

Pump cavitation

Application

The TIPTECTOR handheld probe is suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 600 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

TIPTECTOR is mainly used for data collection in an industrial environment. The signal acquisition and processing is carried out with a PRÜFTECHNIK data collector (e.g. VIBSCANNER, VIBXPERT II, VIBROTIP).

The handheld probe can be extended by various grips to reach measurement locations that are inaccessible with the built-in VIBROTIP or VIBSCANNER sensor, or those which obstruct your view of the display.

Scope of supply

The TIPTECTOR set VIB 8.606 VS contains:

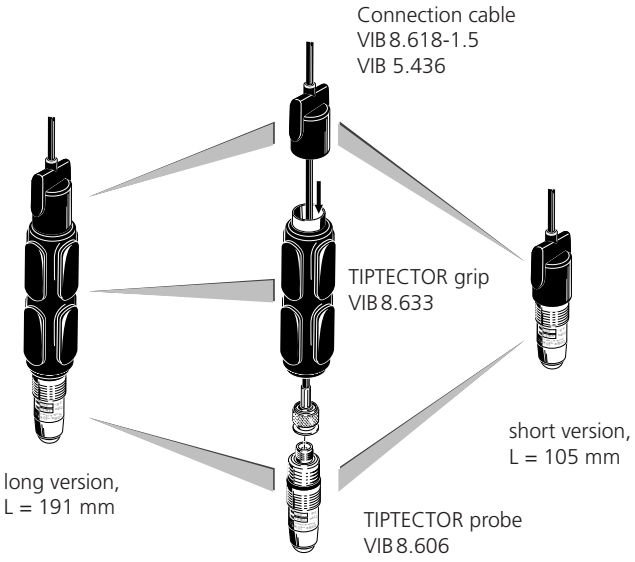
VIB 8.606	TIPTECTOR probe
VIB 8.633	TIPTECTOR grip
VIB 5.436	VIBSCANNER cable

The TIPTECTOR set VIB 8.606 VD contains:

VIB 8.606	TIPTECTOR probe
VIB 8.633	TIPTECTOR grip
VIB 8.618-1.5	VIBROTIP cable, 1.5 m

Accessories / Spare parts

VIB 8.609	TIPTECTOR grip extension, 100 mm
VIB 8.618-5	VIBROTIP cable, 5 m
VIB 8.610	PRÜFTECHNIK counter sink bit (to prepare the measurement location)

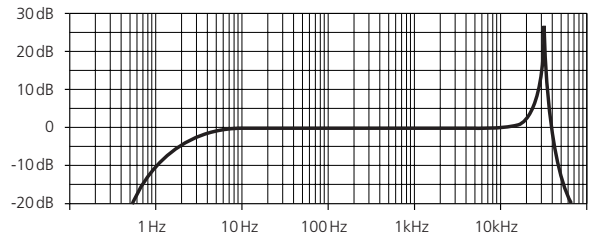


Technical data

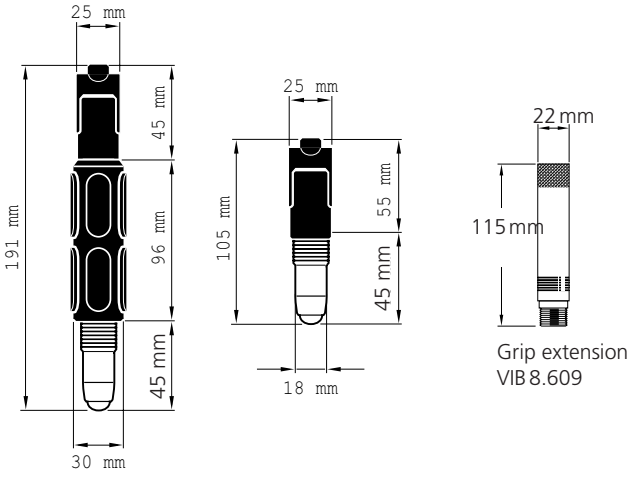
PARAMETER			VIB 8.606
Measurement	Signaling system		Current Line Drive; 3.5 mA closed current with superposed AC signal
	Transmission factor	± 2%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 10%	10 Hz ... 10 kHz
	Resonance frequency		36 kHz
	Linearity range		± 50 ms^{-2}
	Temperature range		-10°C ... +80 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 10%
	Temperature sensitivity		< 0.3 ms^{-2}/K
	Magnetic sensitivity		< 14 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.1 ms^{-2}/µm/m
	Electrical noise, rms		< 0.001 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Cable connection		TNC socket
	Shock limit		< 50 kms^{-2}
	Weight		75 g (short), 205 g (long)

All details apply to a measuring in the sinking. For optimal signal transmission, the measurement location should be prepared with the PRÜFTECHNIK countersink bit VIB 8.610.

Frequency response



Dimensions



Grip extension VIB 8.609

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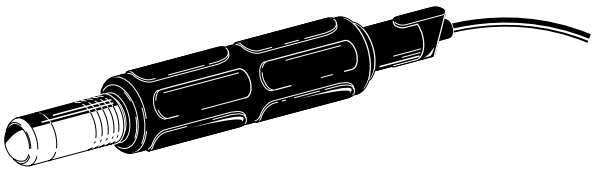
TIPTECTOR handheld probe set for mobile vibration measurements, intrinsically safe

VIB 8.606 XVS : TIPTECTOR handheld probe set for VIBSCANNER EX, intrinsically safe

VIB 8.606 XVD : TIPTECTOR handheld probe set for VIBROTIP EX, intrinsically safe



Vibration acceleration

Bearing condition

Pump cavitation

CE 0044

Application

The TIPTECTOR handheld probe is suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 600 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

TIPTECTOR EX is mainly used for data collection in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBROTIP EX). TIPTECTOR EX may not be used with VIBXPERT EX!

For measurements outside a hazardous area TIPTECTOR EX can also be used with data collectors without EX protection.

The handheld probe can be extended by various grips to reach measurement locations that are inaccessible with the built-in VIBROTIP or VIBSCANNER sensor, or those which obstruct your view of the display.

Notes on intrinsic safety

The intrinsically safe TIPTECTOR probe VIB 8.606 EX may only be connected to designated devices with the following interface parameters:

U_{max} = 17 V
I_{max} = 50 mA
P_{max} = 300 mW
C_i , L_i = negligible small

The details in the EC type examination certificate TÜV 04 ATEX 2741 must be considered.

Scope of supply

The TIPTECTOR set VIB 8.606 XVS contains:

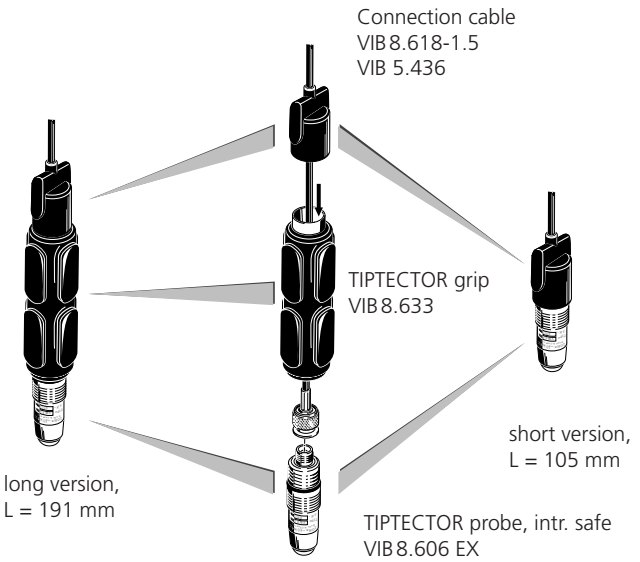
VIB 8.606 EX	TIPTECTOR probe, intrinsically safe
VIB 8.633	TIPTECTOR grip
VIB 5.436	VIBSCANNER cable

The TIPTECTOR set VIB 8.606 XVD contains:

VIB 8.606 EX	TIPTECTOR probe, intrinsically safe
VIB 8.633	TIPTECTOR grip
VIB 8.618-1.5	VIBROTIP cable, 1.5 m

Accessories / Spare parts

VIB 8.609	TIPTECTOR grip extension, 100 mm
VIB 8.618-5	VIBROTIP cable, 5 m
VIB 8.610	PRÜFTECHNIK counter sink bit (to prepare the measurement location)

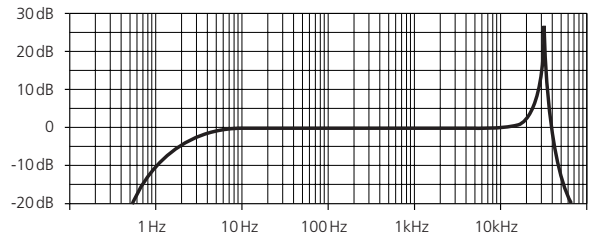


Technical data

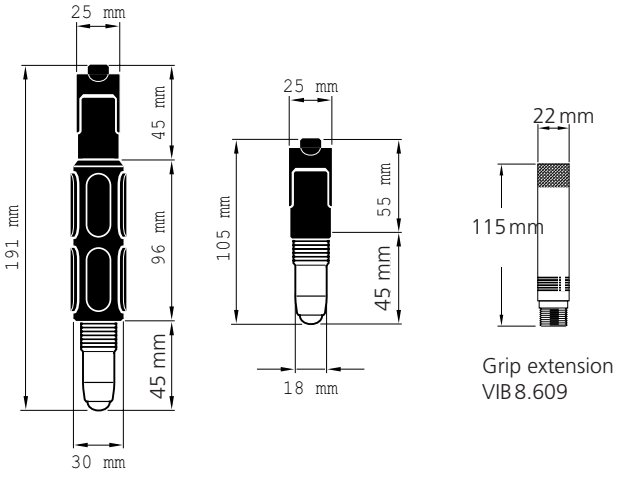
PARAMETER			VIB 8.606 EX
Measurement	Signaling system		Current Line Drive; 3.5 mA closed current with superposed AC signal
	Transmission factor	± 2%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 10%	10 Hz ... 10 kHz
	Resonance frequency		36 kHz
	Linearity range		± 50 ms^{-2}
	Temperature range		-10°C ... +80 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 10%
	Temperature sensitivity		< 0.3 ms^{-2}/K
	Magnetic sensitivity		< 14 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity		< 0.1 ms^{-2}/µm/m
	Electrical noise, rms		< 0.001 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Cable connection		TNC socket
	Shock limit		< 50 kms^{-2}
	Weight		75 g (short), 205 g (long)
EX	Marking, gas expl. protection		Ex II 2 G EEx ib IIC T4

All details apply to a measuring in the sinking. For optimal signal transmission, the measurement location should be prepared with the PRÜFTECHNIK countersink bit VIB 8.610.

Frequency response



Dimensions



Grip extension VIB 8.609

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Mobile accelerometers with quick fitting coupling

VIB 8.666 VS : Mobile accelerometer with quick fitting coupling for VIBSCANNER and VIBXPERT

VIB 8.666 VD : Mobile accelerometer with quick fitting coupling for VIBROTIP

Vibration acceleration

Bearing condition

Pump cavitation

Application

These accelerometers are suitable for vibration measurements up to 10 kHz on machinery with rotational speeds above 600 min^{-1}, for shock pulse measurements on roller bearings and for cavitation measurements in pumps.

The signal acquisition and processing is carried out with a PRÜFTECHNIK data collector (e.g. VIBSCANNER, VIBXPERT II, VIBROTIP).

The accelerometer locks onto the appropriate stud via its quick fitting coupling in optimum position and with consistent pressure. The rigid coupling to the stud provides optimum transmission of vibration and bearing signals (shock pulse).

Technical data

PARAMETER			VIB 8.666 R
Measurement	Signaling system		Current Line Drive; 3.5 mA closed current with superposed AC signal
	Transmission factor	± 2%	1.0 µA/ms^{-2} (Ref.: 159 Hz; 25 °C)
	Frequency range	± 5%	1 Hz ...10 kHz (short stud)
	Resonance frequency		36 kHz (short stud)
	Linearity range	± 10%	± 50 ms^{-2}
	Temperature range		-30°C ... +100 °C
Electrical	Power requirement		> 10 mA / 7-18 VDC
	Transverse sensitivity		< 5% at 10 Hz
	Temperature sensitivity		< 0.05 ms^{-2}/K
	Magnetic sensitivity		< 5 ms^{-2}/T (at 50 Hz)
	Electrical noise, rms		< 0.01 ms^{-2} from 2 Hz
	Output impedance		> 300 kOhm
Mechanical	Case material		Stainless steel VA 1.4305
	Environmental protection		IP 65 (w/ cable)
	Shock limit		< 250 kms^{-2}
	Weight		28 g

Scope of supply

The accelerometer set VIB 8.666 VS contains:

VIB 8.666 R	Quick fit accelerometer w/o cable
VIB 5.436	VIBSCANNER/ VIBXPERT cable

The accelerometer set VIB 8.666 VD contains:

VIB 8.666 R	Quick fit accelerometer w/o cable
VIB 321926-2	Spiral cabel with QLA plug

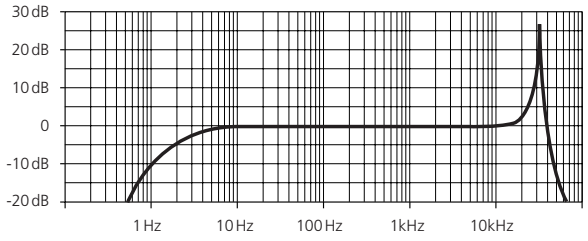
Spare part

VIB 8.666 R	Quick fit accelerometer w/o cable

Accessories

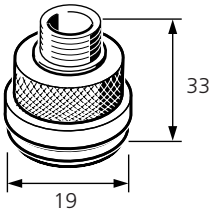
VIB 32000	Meas. stud M8x24, nickel-plated
VIB 32010	Meas. stud M8x24, Stainless steel
VIB 32200	Meas. stud M8x113, nickel-plated
VIB 32210	Meas. stud M8x113, Stainless steel
VIB 32310	Meas. stud M8x202, Stainless steel
VIB 32410	Meas. stud M8x291, Stainless steel

Frequency response

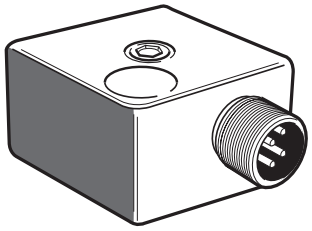


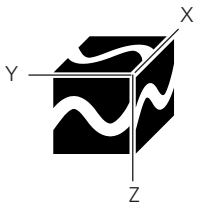
Dimensions

in mm



VIB 6.655 : Triaxial accelerometer for VIBXPERT





Application

This triaxial accelerometer is used for the measurement of machine and component vibrations up to 10 kHz in the horizontal, vertical and axial directions at a single measurement location. The triaxial accelerometer achieves shorter measuring times with a data collector and is easier to install since only one sensor needs to be mounted.

Connection

Cable adapter VIB 5.336 is needed to connect the sensor to the 2-channel VIBXPERT FFT data collector. It is not permissible to connect the sensor to VIBXPERT EX.

Mounting

The triaxial accelerometer is attached to the machine using the magnetic holder VIB 3.420.

Accessories

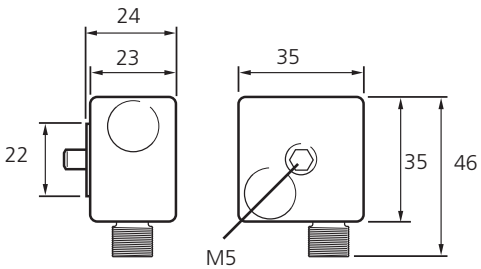
VIB 5.336	Cable adapter for triaxial accelerometer
VIB 3.420	Magnetic holder for curved surfaces
VIB 3.422	Magnetic holder for flat surfaces

Technical data

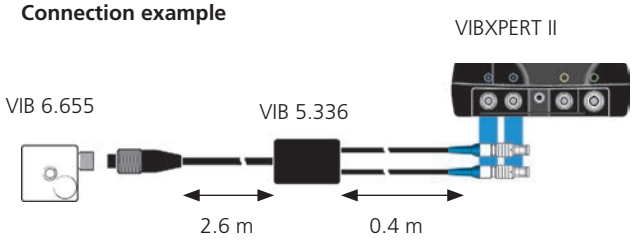
PARAMETER		VIB 6.655
Measurement	Signaling system	ICP
	Measurement range (peak.)	± 50 g
	Transmission factor ± 5%	100 mV/g
	Frequency range ± 3dB	0.6 Hz ...10 kHz
	w/ magnetic holder ± 3dB	0.6 Hz ...2 kHz
	± 10%	1 Hz ...6.5 kHz
	Temperature range	-54°C ... +121 °C
Electrical	Settling time	< 2.5 s
	Power requirement	2-10 mA / 18-30 VDC
	Spectral noise, @ 10 / 100 / 1000 Hz	27 / 6.5 / 2.5 µg / (Hz)^{½}
	Output impedance	< 100 Ohm
	Case insulation	> 10^8 Ohm
	Bias output voltage	11-13 VDC
Mechanical	Case material	Stainless steel 316L
	Mounting	M5x1 captive bolt
	Mounting torqu	1.4 bis 2.7 Nm
	Connector type	Cable connector, 4-pole (Mini-MIL)
	Weight	200 g

Dimensions

in mm



Connection example



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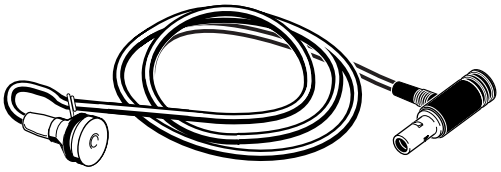
Temperature probes for PRÜFTECHIK data collectors

VIB 8.605 :	Built-in temperature probe for VIBROTIP / VIBSCANNER (spare part)
VIB 8.607-1,5 :	Temperature probe with magnetic holder, 1.5 m
VIB 8.608 :	Handheld temperature probe

VIB 8.605

Temperature



VIB 8.607-1,5

VIB 8.608

Description

Temperature probes for PRÜFTECHNIK data collectors include a thermocouple type K, which can be used for temperature measurements up to 500 ° C.

Application

The temperature probe VIB 8.605 is a spare part for VIBROTIP's or VIBSCANNER's built-in temperature probe. It can be easily replaced by pressing a button. Its flexible, rubberized neck allows optimum contact with the measurement location and temperature measurements in liquids.

The temperature probe with magnetic holder VIB 8.607-1,5 is used to reach poorly-accessible measurement locations, which are not accessible with VIBROTIP's or VIBSCANNER's built-in temperature probe. The powerful magnet makes for extremely quick and simple mounting.

The handheld temperature probe VIB 8.608 measures up to 500°C. The long, narrow probe tip allows measurements even at hard to reach locations.

Notes

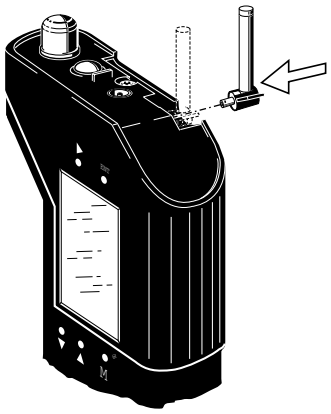
Applies to VIB 8.607-1,5:
During transport / storage a steel washer as a short-circuit rail is mounted on the pole pieces.

The safety data sheet is available upon request (info@pruftechnik.com) or in the Internet (www.pruftechnik.com).

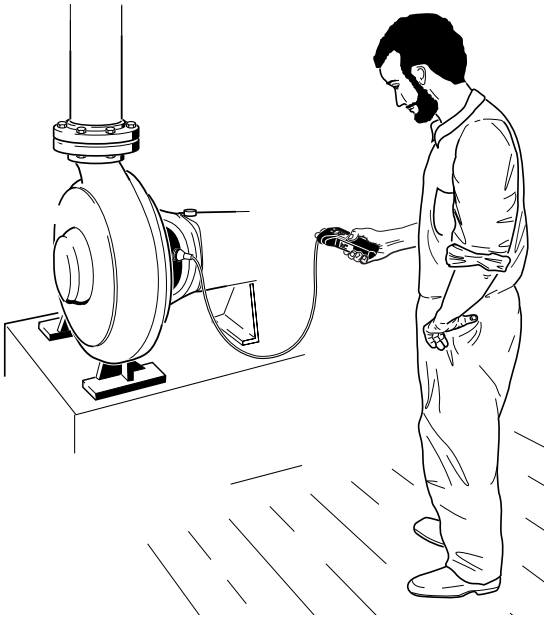
Technical data

PARAMETER		VIB 8.605	VIB 8.607-1,5	VIB 8.608
Measurement	Type	Thermocouple type K		
	Meas. range	-30°C.. +270°C	-50°C ... +240°C	-50°C ... +500°C
	Sensitivity	--	0.040 mV/°C	
	Accuracy	< 3%		
Mechanical	Dimensions (L x Ø)	25 mm x 11 mm	14 mm (Ø)	250 mm x 3 mm
	Cable length	--	1,5 m	--
	Weight	6 g	28 g	83 g
	Connector	QLA plug		

Application examples



Replacing the internal VIBROTIP temperature probe VIB 8.605



Temperature probe VIB 8.607-1,5 used with VIBROTIP

VIB 6.631 : Laser trigger / Laser RPM sensor

Laser / Sensor

RPM / Trigger

Application
This sensor is used as a trigger for vibration measurements and for RPM measurements.

Description
The sensor detects the signals optically, i.e. without having contact with rotating machine parts during the measurement. Red laser light is emitted from the sensor head and impinges on a mark on the rotating shaft. The mark can be light reinforcing (e.g. reflective tape VIB 3.306) or light damping (e.g. black, high-contrast line on a bright surface). Every time the optical system measures a brightness contrast, the sensor emits an electrical pulse. The data collector (VIBXPERT, VIBSCANNER) calculates the shaft speed based on the rate of repetition of this voltage pulse.

Installation and adjustment
The sensor is mounted on the machine using the trigger stand (VIB 6.632). To adjust the sensor, the laser beam is pointed toward the measurement mark while the machine is at a standstill. As far as possible, the laser beam should be slightly inclined to the shaft surface and shaft axis.

Safety notes
- Do not stare into the laser beam!
- Do not open the housing!

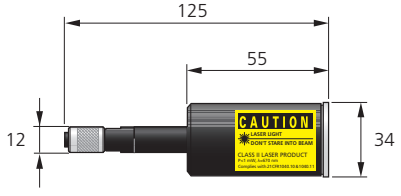
Cleaning instructions
- Clean the lens with a moist cloth.
- Use water only. Do not use alcohol of any kind!
- Protect the lens from contamination with skin grease. Avoid direct contact. Do not touch with areas of the cloth that were previously touched.

Accessories
VIB 6.632 Trigger stand
VIB 5.432-2,9 Trigger cable
VIB 3.306 Reflective tape (measurement mark)

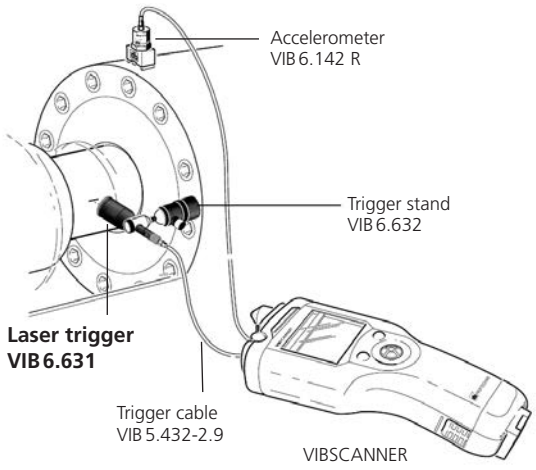
Technical data

PARAMETER		VIB 6.631
Measurement	Measurement principle	optical
	Measurement range	0.1 ... 600'000 1/min.
	Measurement distance w/ reflective mark	0.05 ... 2 m
	w/ contrast mark	0.05 ... 0.75 m
	Temperature range	-20 °C ... +50 °C
Electrical	Power requirement	< 5.8 V (from device)
	Output	5 V (TTL)
	Laser wave length	670 nm (red)
	Laser class	2 (DIN EN 60825-1, May 2008)
Mechanical	Connection	Trigger cable VIB 5.432-2,9
	Environmental protection	IP 65
	Weight	72 g
	Dimensions	see drawing

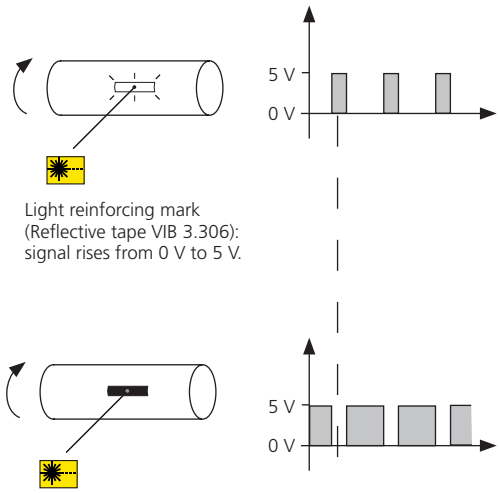
Dimensions
in mm



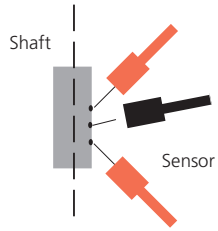
Typical setup



Signal response

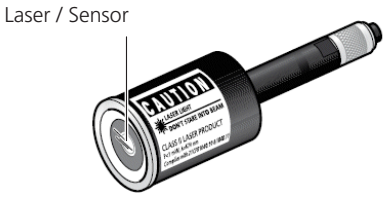


Adjusting



Acceptable angular deviation:
± 45° (Reflective mark)
± 15° (Contrast mark)

VIB 6.631 EX: Laser trigger / Laser RPM sensor, intrinsically safe



RPM / Trigger

0044

Application

This sensor is used as a trigger for vibration measurements and for RPM measurements in a hazardous industrial environment. The signal acquisition and processing is carried out with an intrinsically safe PRÜFTECHNIK data collector (e.g. VIBSCANNER EX, VIBXPERT EX).

For measurements outside a hazardous area the sensor can also be used with data collectors without EX protection.

Description

The sensor detects the signals optically, i.e. without having contact with rotating machine parts during the measurement. Red laser light is emitted from the sensor head and impinges on a mark on the rotating shaft. The mark can be light reinforcing (e.g. reflective tape VIB 3.306) or light damping (e.g. black, high-contrast line on a bright surface). Every time the optical system measures a brightness contrast, the sensor emits an electrical pulse. The data collector (VIBXPERT, VIBSCANNER) calculates the shaft speed based on the rate of repetition of this voltage pulse.

Installation and adjustment

The sensor is mounted on the machine using the trigger stand (VIB 6.632). To adjust the sensor, the laser beam is pointed toward the measurement mark while the machine is at a standstill. As far as possible, the laser beam should be slightly inclined to the shaft surface and shaft axis.

Accessories

VIB 6.632	Trigger stand
VIB 5.432-2,9	Trigger cable
VIB 3.306	Reflective tape (measurement mark)

Safety notes

- Do not stare into the laser beam!
- Do not open the housing!

Cleaning instructions

- Clean the lens with a moist cloth.
- Use water only. Do not use alcohol of any kind!
- Protect the lens from contamination with skin grease. Avoid direct contact. Do not touch with areas of the cloth that were previously touched.

Notes on intrinsic safety

The intrinsically safe laser trigger sensor of the series VIB 6.631 EX is only for „connection to a compatible measuring device/operating equipment with a separate EG type examination certificate“ or „for connection to certified intrinsically safe circuits that do not exceed the following maximum values:

U_{max}	12V DC
P_{max}	600 mW
I_i	160 mA
C_i	328 nF
L_i	negligible small

The details in the EC type examination certificate Zelm 10 ATEX 0429 must be considered.

Additionally the installation notes for hazardous areas annexed in this catalog and the european installation instructions must be followed (EN 60079-14:2003).

Permissible cable

Cable for laser trigger sensor - VIB 5.432-2,9

Service and maintenance

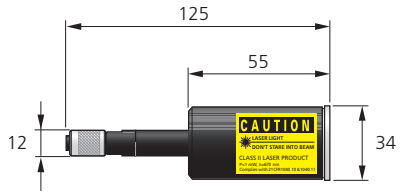
Service and maintenance cannot be performed on the sensor. If the sensor is damaged, it must be immediately removed from the hazardous area.

Technical data

PARAMETER		VIB 6.631 EX
Measurement	Measurement principle	optical
	Measurement range	0.1 ... 600'000 1/min.
	Measurement distance w/ reflective mark	0.05 ... 2 m
	w/ contrast mark	0.05 ... 0.75 m
	Temperature range	-20 °C ... +50 °C
Electrical	Power requirement	< 5.8 V (from device)
	Output	5 V (TTL)
	Laser wave length	670 nm (red)
	Laser class	2 (DIN EN 60825-1, May 2008)
Mechanical	Connection	Trigger cable VIB 5.432-2,9
	Environmental protection	IP 65
	Weight	72 g
	Dimensions	see drawing
EX	Marking	Ex II 2 G Ex ib op is IIC T4

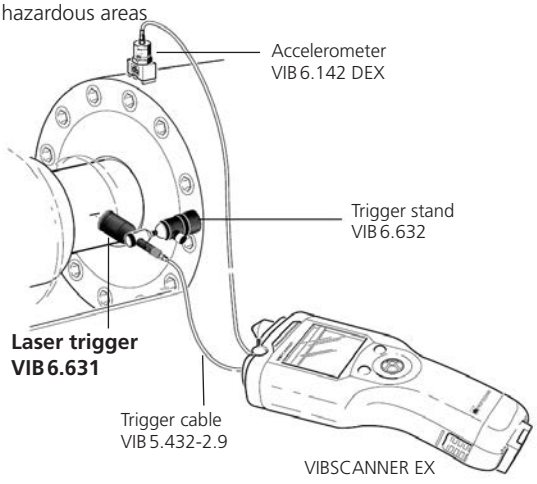
Dimensions

in mm

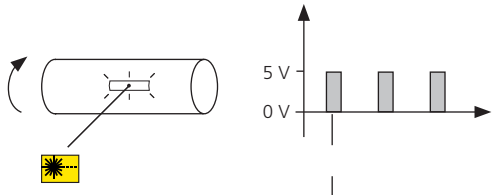


Typical setup

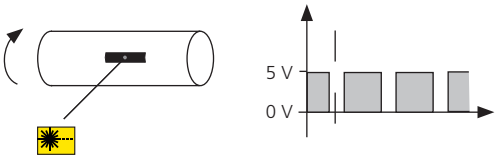
in hazardous areas



Signal response

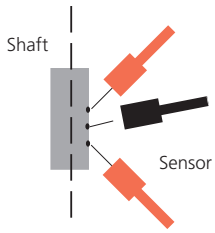


Light reinforcing mark
(Reflective tape VIB 3.306):
signal rises from 0 V to 5 V.



Light damping mark (black line):
signal drops from 5 V to 0 V.

Adjusting



Acceptable angular deviation:
± 45° (Reflective mark)
± 15° (Contrast mark)

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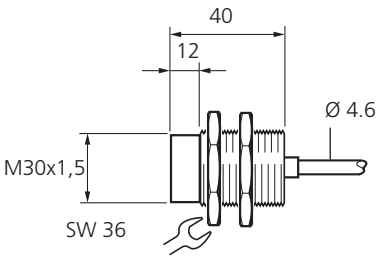
VIB 6.640: Inductive proximity sensor for VIBXPERT incl. cable (3-15 mm)

Displacement / Expansion



Dimensions in mm

Application

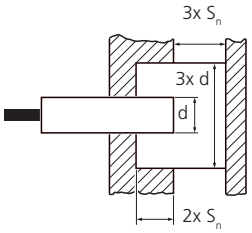
The proximity sensor is used for contact-free measuring the gap of metallic objects within the specified range (3 - 15 mm).

Function

The sensor is suitable for measurements without the highest precision requirements. The linearization of the characteristic curve is automatically done in the VIBXPERT data collector.

Mounting

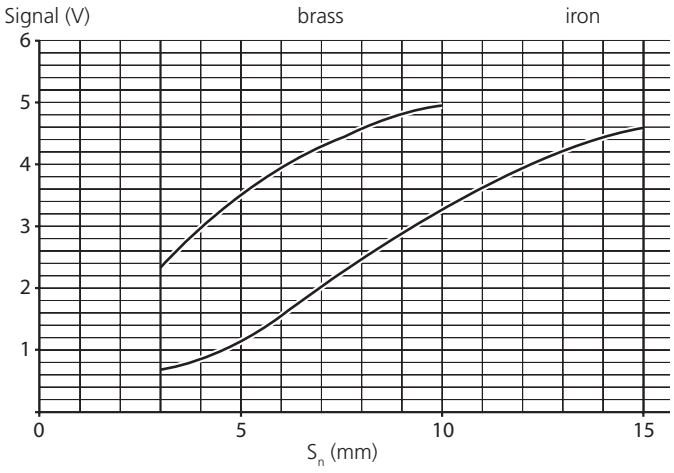
The through tapped hole enables the simple mounting and positioning of the sensor. The following notes according to EN 60947-5-2 for non-flush mounting in metal must be observed:



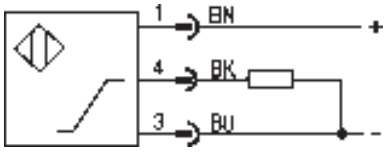
Technical data

PARAMETER		VIB 6.640
Measurement	Measuring principle	Inductive
	Measurement variable	relative displacement / expansion
	Working range S_n	3 ... 15 mm
	Linearity	≤ 5%
	Repeatability	≤ 1%
	Average rise	0.333 V/mm ±5%
	Max. frequency	300 Hz
	Influence Ub on Ua dU_a/dU_b	approx. 6.7% / 0.1V
	Temperature range	-25 °C ... +70 °C
	Temperature drift	±5%
Electrical	Operating voltage U_b	5 VDC, stabilized
	Operating current	≤ 15mA
	Output signal U_a	0.5 .. 4.5 VDC (see characteristic)
	Load resistance	≥ 20 kOhm
Mechanical	Case material	Brass, nickel-plated
	Material of active surface	PCP
	Environmental protection	IP 67
	Installation	Non-flush
	Connection	Cable with MiniSnap connector, 2.9 m long

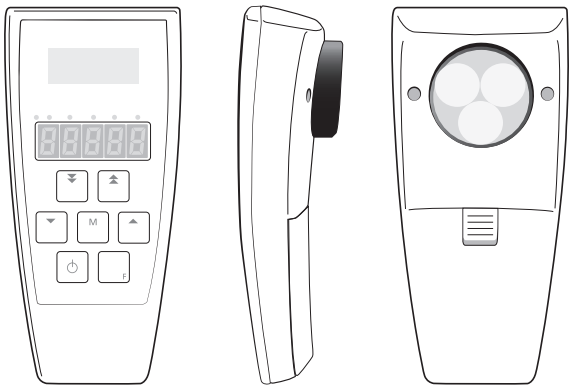
Characteristic



Connection diagram



VIB 6.672: LED stroboscope



Application
This handy stroboscope is used together with the VIBXPERT FFT analyzer to analyze rotary motion and to measure phase shift, rotational speed and velocity.

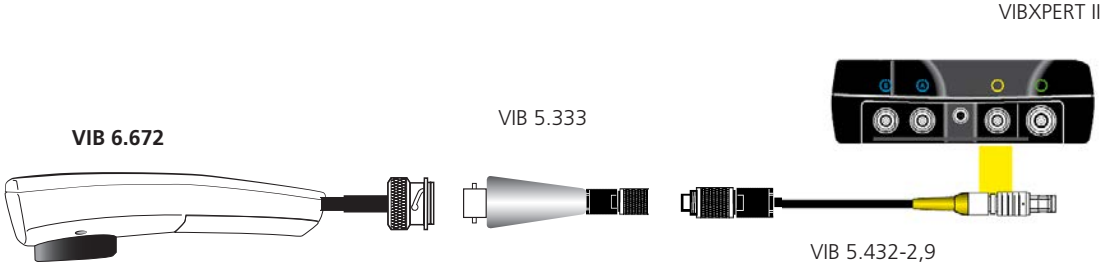
Function
The stroboscope uses bright LEDs. The flash frequency can be controlled internally or set via an external trigger signal

Scope of delivery
- LED stroboscope
- Trigger cable 1.5 m incl. BNC connector
- Hard shell box
- Set of batteries (2x AA / LR6)
- Manual

Technical data

PARAMETER		VIB 6.672
Measurement	Light source	3 CREE diodes
	Light intensity	3800 Lux max. (@ 50 Hz / 20 cm)
	Frequency range	1 - 2000 Hz / 60 - 99999 min^{-1}
	Control of the flash rate	Internal: key pad External: external trigger signal
	Phase shifting	0 - 360°
	Operating temperature	0 ... +40 °C
	Operating time	< 15h
General	Dimensions	140 x 63 x 38 mm
	Weight	175 g
	Storage temperature	-20 °C ... +70 °C
	Rel. humidity	< 80% at 30 °C
	Protection class	IP 40

Application example
VIBXPERT II with stroboscope VIB 6.672



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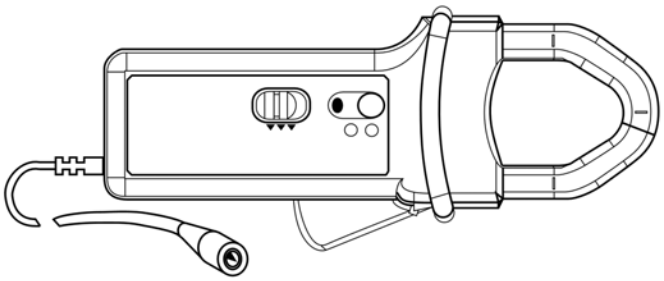
VIB 6.673: Current clamp (400A AC/ 600A DC)



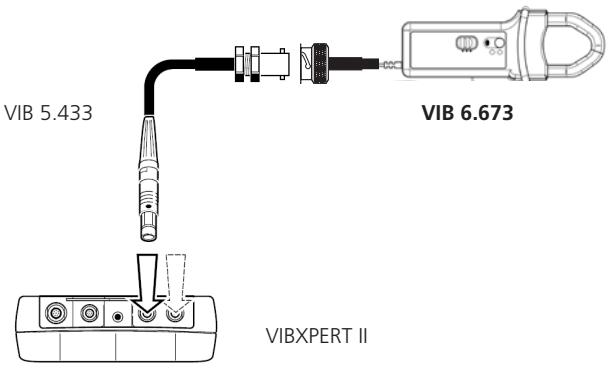
Application
This current clamp connects to the VIBXPERT II FFT analyzer and is used for AC/DC current measurement, power measurment and True RMS measurement with DC component.

Function
The current clamp uses the Hall-effect principle. A push button operates the automatic DC zeroing.

Connection
The cable adapter for signal low voltage (VIB 5.433) is required to connect the current clamp to VIBXPERT II.

Scope of supply
Current clamp, 9V battery, manual

Application example
VIBXPERT II and current clamp VIB 6.673



Technical data

PARAMETER		VIB 6.673	
Electrical	Calibre	60 A	600 A
	Current range	0.2 ... 40A AC 0.4 ... 60A DC	0.5 ... 400A AC 0.5 ... 600A DC
	Output signal	10mV/A	1mV/A
	Accuracy*	0.5..40A:1.5% ±5mV 40 ... 60A DC: 1.5%	0.5..100A:1.5% ±1mV 100 .. 400A DC: 2% 400 .. 600A DC: 2.5%
	Phase shift (45 - 65 Hz)*	10 ... 20A : < 3° 20 ... 40A : < 2°	10 ...100A : < 2° 100...400A : < 1.5°
	Noise	DC ... 1 kHz : < 8mV DC ... 5 kHz : < 12mV 0.1 Hz ..5 kHz : < 2mV	DC ... 1 kHz : < 1mV DC ... 5 kHz : < 1,5mV 0.1Hz...5 kHz : < 0.5mV
	Rise/ Fall time	≤ 100µs from 10 to 90% of the voltage value	≤ 70µs from 10 to 90% of the voltage value
	Overload	2000 A DC / 1000 A AC up to 1kHz	
	Bandwidth	DC ... 10 kHz at -3dB	
	Load impedance	≥ 1MOhm and ≤ 100pF	
	Operating voltage	600 V RMS	
	Battery	9V alkaline (NEDA 1604 A, IEC 6LR61)	
	Low battery signal	Green LED when battery voltage > 6.5 V	
	Battery life	approx. 50 hours	
	Overload indicator	Red LED	
	Autom. switch-off	10 minutes non-use	
Mechanical	Operat. temperature	-10°C .. +55°C	
	DC zero adjustment	Automatically operated by button (±10A)	
	Max. jaw insertion	1 cable Ø 30mm or 2 cables Ø 24 mm	
	Protection rating	IP 30	
	Dimensions	224x97x44 mm	
	Weight	440g	
	Connection	Coaxial cable, 2 m, BNC plug	

* Conditions of reference:
18° at 28°C, 20 to 75% RH, 48 to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample, charge ≥ 1 MOhm and ≤ 100 pF, reset to zero before measurement (only DC) DC to 65 Hz, batteries 9 V ±0.1 V

Chapter 3
Mounting adapters and tools

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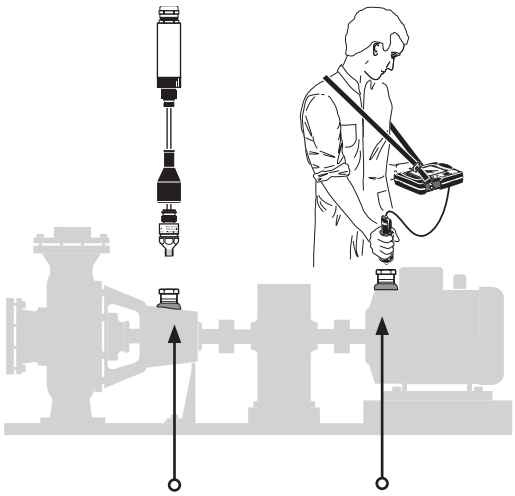
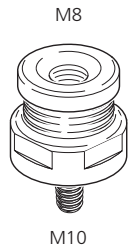
Contents: Mounting adapters and tools

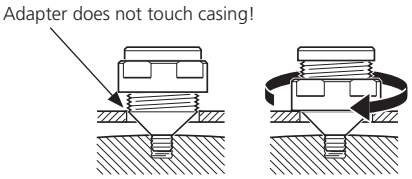


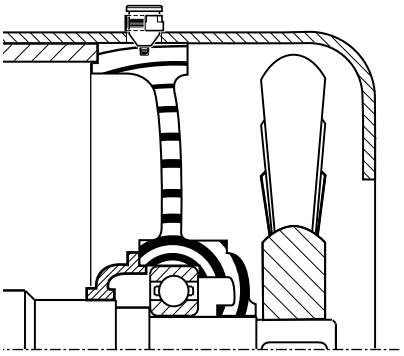
Screwed adapters with locking nut

VIB 3.411 :	Screwed adapter with locking nut, M8 to M8
VIB 3.412 :	Screwed adapter with locking nut, M8 to M10
VIB 3.413 :	Screwed adapter with locking nut, M8 to M12
VIB 3.414 :	Screwed adapter with locking nut, UNC 5/16 to UNC 5/16
VIB 3.415 :	Screwed adapter with locking nut, UNC 5/16 to UNC 3/8 - 16
VIB 3.416 :	Screwed adapter with locking nut, UNC 5/16 to UNC 1/2 -13

VIB 3.412







Application

The adapter with locking nut is ideal for situations such as motor housings where there is little clearance between the actual mounting location (e.g. the bearing housing) and the machine housing. This arrangement can even be used to replace existing housing screws. Once the adapter is torqued into the threaded hole prepared for measurement, the counter nut can be tightened against the machine housing.

To ensure optimum signal transmission, the cone of the bolt may only touch the measuring point (e.g. the bearing housing), but not the metal casing.

Material

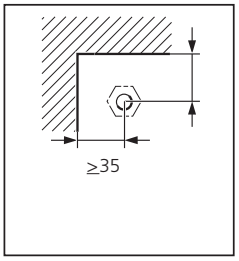
Stainless steel, VA1.4305

Installation accessories

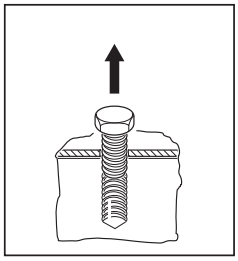
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

Mounting instructions

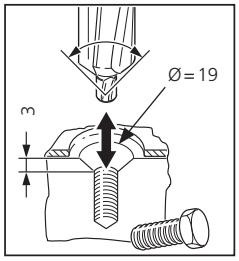
dimensions in mm



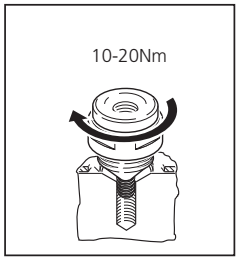
Ensure sufficient clearance



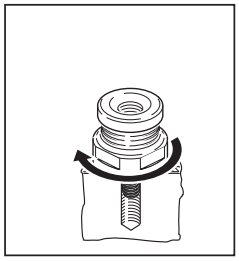
Remove bolt and housing cowling



Countersink hole, bore cowling

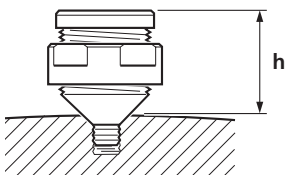


Mount adapter



Fasten locking nut

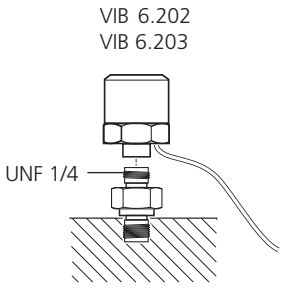
Height



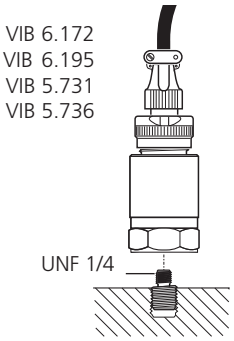
Adapter Order no.	Height h in mm
VIB 3.413 / VIB 3.416	**16**
VIB 3.412 / VIB 3.415	**17**
VIB 3.411 / VIB 3.414	**18**

Screwed adapters for accelerometers

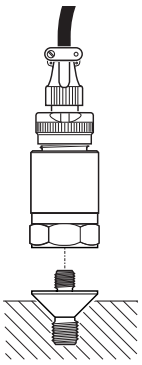
VIB 3.417-M5 :	Screwed adapter for mini accelerometer, UNF 1/4 to M5-flat
VIB 3.417-M6 :	Screwed adapter for mini accelerometer, UNF 1/4 to M6-flat
VIB 3.437 :	Screwed adapter for CLD- /ICP-type accelerometer and VIBROTECTOR, UNF 1/4 to M8-90°
VIB 3.438 :	Screwed adapter for CLD- /ICP-type accelerometer and VIBROTECTOR, UNF 1/4 to M8-flat
VIB 3.439 :	Screwed adapter for CLD- /ICP-type accelerometer and VIBROTECTOR, UNF 1/4 to M5-flat
VIB 3.480 :	M8 thread for CLD- /ICP-type accelerometer and VIBROTECTOR vibration transmitter



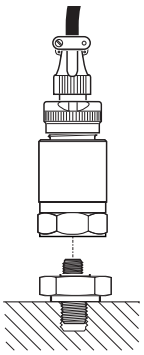
VIB 3.417-M6



VIB 3.480



VIB 3.437



VIB 3.438

Application

The adapters VIB 3.417-M5 / M6 and VIB 3.437 to VIB 3.439 are used for the installation of accelerometers in existing threads of the appropriate size.

The M8 threaded adapter VIB 3.480 is standard in the CLD / ICP-type accelerometers and in the VIBROTECTOR vibration transmitter.

Material

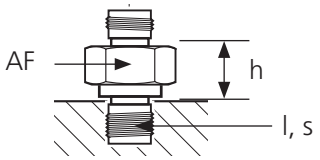
Stainless steel, VA1.4305

Installation accessories

VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Dimensions in mm

Adapter order no.	Installation height h	Thread size s	Thread length l	Width across flats, AF
VIB 3.480	0	M8	11	--
VIB 3.417-M5	11	M5	5	13
VIB 3.417-M5	11	M6	6	13
VIB 3.437	4	M8-90°	5	--
VIB 3.438	8	M8	4	22
VIB 3.439	1	M5	4	--



Screwed adapters for industrial accelerometers

VIB 3.435 :	Screwed adapter for mobile industrial accelerometer, M5-flat to M5-120°
VIB 3.436 :	Screwed adapter for mobile industrial accelerometer, M5-flat to M6-90°
VIB 3.440 :	Screwed adapter for mobile industrial accelerometer, M5-flat to M8-90°
VIB 3.441 :	Screwed adapter for mobile industrial accelerometer, M5-flat to UNC5/16-90°
VIB 3.474 :	Screwed adapter for industrial accelerometer, M8-90° to M16
VIB 3.475 :	Screwed adapter for industrial accelerometer, M8-90° to M20
VIB 8.772 :	Screwed adapter for industrial accelerometer, M8-90° to M10-120°

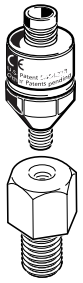
VIB 6.122R

VIB 8.772

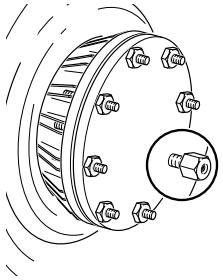
VIB 6.142R

VIB 3.435

VIB 6.122R



VIB 3.474



Application

The adapters VIB 3.435 to VIB 3.441 are used for the installation of industrial accelerometers of the series VIB 6.1xx in existing threads of the appropriate size.

The adapters VIB 3.474 and VIB 3.475 are used for the permanent installation of accelerometers for monitoring the bearings in turbochargers. The adapter replaces a screw on the turbocharger. When selecting the accelerometer and cabling, bear in mind the high temperature range (approx. 130°C) of the turbocharger.

Journal bearings cannot be monitored using these adapters.

The adapter VIB 8.772 is used to install an industrial accelerometer (M8 thread) into an existing M10 hole, e.g. jack ring thread on a motor.

Material

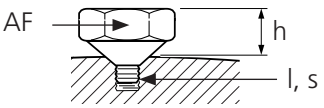
Stainless steel, VA1.4305

Installation accessories

VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

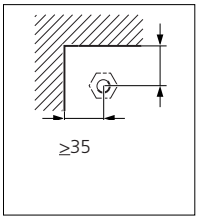
Dimensions in mm

Adapter order no.	Installation height h	Thread size s	Thread length l	Width across flats, AF
VIB 3.435	8	M5-120°	3.5	19
VIB 3.436	8	M6-90°	6	19
VIB 3.440	9	M8-90°	5	19
VIB 3.441	9	UNC 5/16-90°	5	19
VIB 3.474	27	M16	65	30
VIB 3.475	27	M20	45	30
VIB 8.772	12	M10-120°	7	19

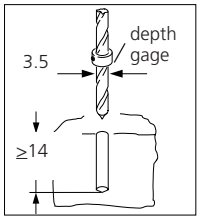


Mounting instructions for VIB 3.440 / VIB 3.441

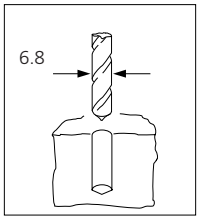
dimensions in mm



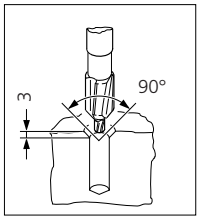
Select position



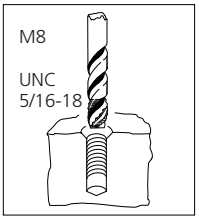
Bore pilot hole



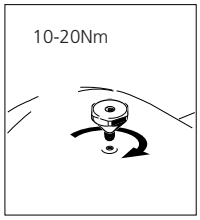
Bore out hole



Countersink



Tap thread



Mount adapter

C

1

2

3

4

5

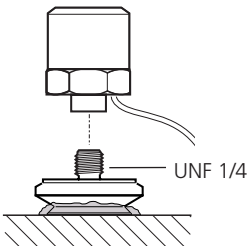
6

A

Adhesive adapters for accelerometers

VIB 3.418 :	Adhesive adapter for mini accelerometer, UNF 1/4 thread
VIB 3.430 :	Adhesive adapter for mobile industrial accelerometer, M5-flat
VIB 3.431 :	Adhesive adapter for industrial accelerometer, M8-90°
VIB 3.432 :	Adhesive adapter for industrial accelerometer, UNC 5/16-90°
VIB 3.433 :	Adhesive adapter for CLD-/ICP-type accelerometer and VIBROTECTOR vibration transmitter

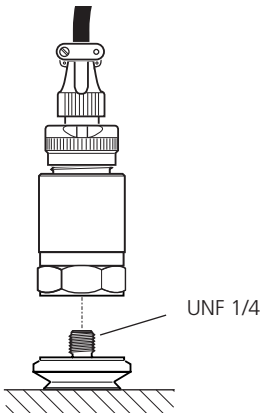
VIB 6.202
VIB 6.203



VIB 3.418

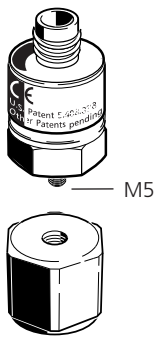
Adhesive connection patented
U.S. patents 6,706,367 / 6,805,943 B2

VIB 6.172
VIB 6.195
VIB 5.731 / 36



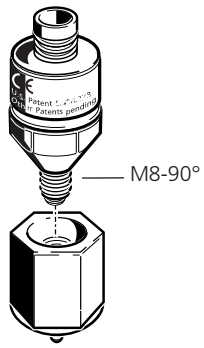
VIB 3.433

VIB 6.142R



VIB 3.430

VIB 6.122R



VIB 3.431

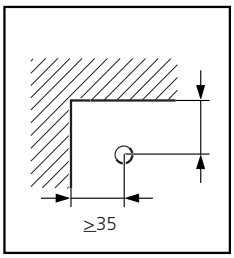
Application
These adapters are ideal when only adhesive mounting is possible.

Material
Stainless steel, VA1.4305

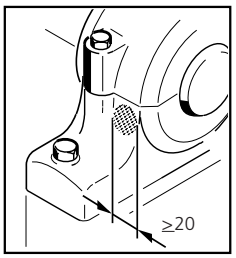
Mounting notes
A removable self-threading centering pin may be used if desired to hold the adapter in place while the adhesive cures to final hardness.

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

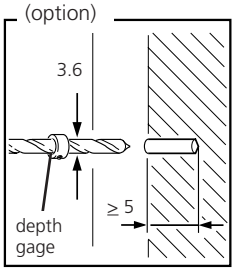
Mounting instructions for VIB 3.430 ... VIB 3.432
dimensions in mm



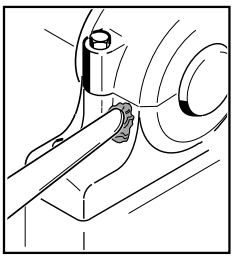
Allow clearance for transducer



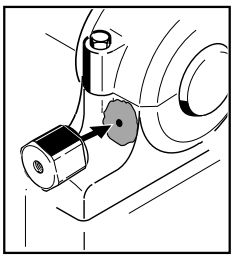
Mounting surface: flat & roughened



(Option: bore hole for centering pin)

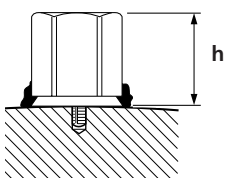


Apply compound to both surfaces



Press & turn adapter into surface

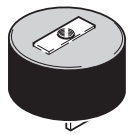
Height



Adapter Order no.	Height h in mm
VIB 3.418	**6**
VIB 3.433	**8**
VIB 3.430	**16**
VIB 3.431 / VIB 3.432	**21**

Magnetic holders for accelerometers

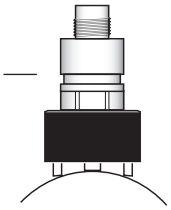
VIB 3.420 :	Magnetic holder for curved surfaces, M5 internal thread
VIB 3.422 :	Magnetic holder for flat surfaces, M5 internal thread
VIB 3.423 :	Magnetic holder for flat surfaces, ¼-28 UNF thread

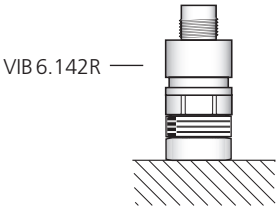


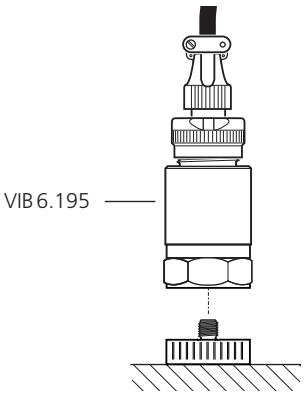
VIB 3.420

VIB 3.422

VIB 3.423







Application

During mobile measurements magnetic holders can be used to attach accelerometers easily and securely at measurement locations with a ferromagnetic base.

The magnetic adapter VIB 3.420 offers secure hold on both curved and flat surfaces.

Notes

Shock pulse measurements (of anti-friction bearings and pump cavitation) may not be performed using magnetic holders.

During transport / storage a steel washer as a short-circuit rail is mounted on the pole pieces.

The safety data sheet is available upon request (info@pruftechnik.com) or in the Internet (www.pruftechnik.com).

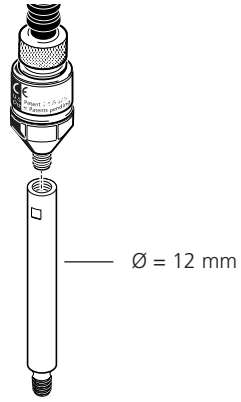
Technical data

PARAMETER		VIB 3.420	VIB 3.422	VIB 3.423
General	Housing material	Plastic PA6, Poles made of steel	Steel	Steel
	Magnet	NdFeB (Neodymium-Iron-Boron)		
	Temperature range (for PA6)	-40°C ... +120°C	--	
	Connection to accelerometer	M5		¼-28 UNF
	Weight, total	70 g	27 g	41 g
	Weight, magnet	28 g	5 g	7 g
	Diameter	34 mm	20 mm	25 mm
	Height	23 mm	11 mm	10 mm

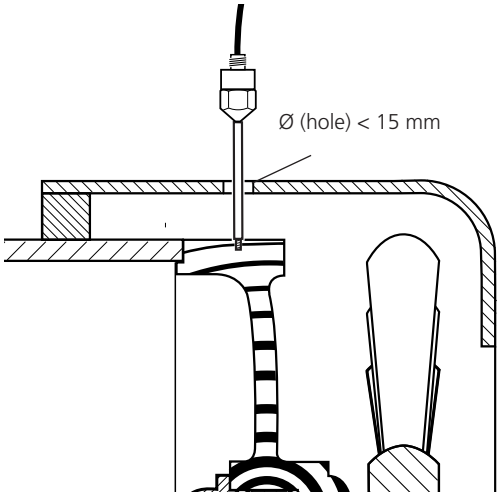
Extension posts for industrial accelerometers

VIB 8.586 :	Extension post for industrial accelerometer, M8 x 55 mm
VIB 8.587 :	Extension post for industrial accelerometer, M8 x 95 mm
VIB 8.588 :	Extension post for industrial accelerometer, M8 x 170 mm
VIB 8.589 :	Extension post for industrial accelerometer, M8 x 35 mm
VIB 8.590 :	Extension post for industrial accelerometer, UNC 5/16 x 2 1/8“
VIB 8.591 :	Extension post for industrial accelerometer, UNC 3/8 x 3 3/4“
VIB 8.592 :	Extension post for industrial accelerometer, UNC 1/2 x 6 5/8“

VIB 6.122R



VIB 8.589



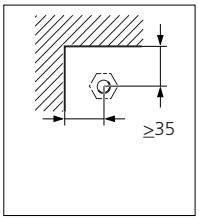
Application
As its name implies, the extension post provides an extra-long shaft to allow measurement in locations where the stem of the industrial accelerometer does not fit directly at the measurement surface. This stud is available in various lengths with an M8 or UNC thread at its bottom.

Material
Stainless steel, VA1.4305

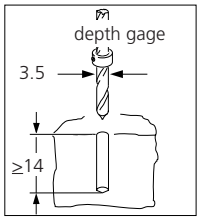
Note
The longest extension posts (170 mm and 6 5/8″) should be used only for bearing condition readings and not for general vibration measurements.

Installation accessories
VIB 8.693 M8 screw tap
VIB 8.696 UNC 5/16 screw tap
VIB 8.694 90° countersink bit

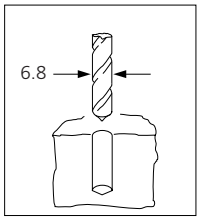
Mounting instructions
dimensions in mm



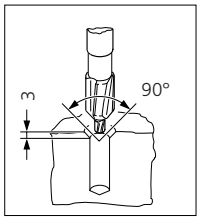
Select position



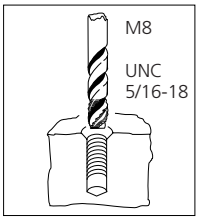
Bore pilot hole



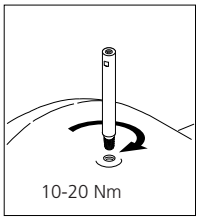
Bore out hole



90° countersink



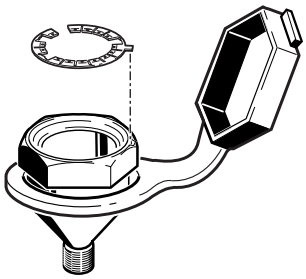
Tap thread



Mount post

VIBCODE measurement studs

VIB 8.679 SET :	VIBCODE measurement stud, M8, high quality stainless steel (VA1.4571), 1 pc.
VIB 8.680 SET :	VIBCODE measurement stud, M8, stainless steel (VA1.4305), 1 pc.
VIB 8.680 A25 :	VIBCODE measurement studs, M8, stainless steel (VA1.4305), 25 pcs.
VIB 8.689 SET :	VIBCODE measurement stud, UNC 5/16, high quality stainless steel (VA1.4571), 1 pc.
VIB 8.689 A25 :	VIBCODE measurement studs, UNC 5/16, high quality stainless steel (VA1.4571), 25 pcs.
VIB 8.690 SET :	VIBCODE measurement stud, UNC 5/16, stainless steel (VA1.4305), 1 pc.
VIB 8.690 A25 :	VIBCODE measurement studs, UNC 5/16, stainless steel (VA1.4305), 25 pcs.



Distinctive feature

VIB 8.679 SET

VIB 8.690 SET

VIB 8.680 SET

VIB 8.689 SET

Description

These VIBCODE measurement studs are the standard measurement locations used with the VIBCODE transducer. Each stud is coded by breaking off specific tabs from the plastic ring using a ring encoding tool according to the unique pattern generated by OMNITREND for each measurement location.

The resulting pattern is read by the VIBCODE probe to identify the measurement location (and from it, its required measurement tasks) reliably and automatically.

Studs made out of high quality stainless steel (composite VA 1.4571) are particularly suited for applications in exceptionally harsh chemical environments.

Installation accessories

VIB 8.693	M8 screw tap
VIB 8.696	UNC 5/16 screw tap
VIB 8.694	90° countersink bit

Accessories

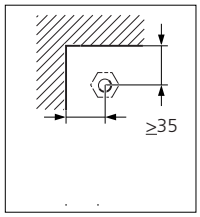
VIB 8.563 A25	VIBCODE code rings, 25 pcs.
VIB 8.692	VIBCODE encoding tool
VIB 8.566	Protective cap
VIB 8.568/..	Color coding for protective cap, 25 pcs.

Scope of delivery for one VIBCODE meas. stud

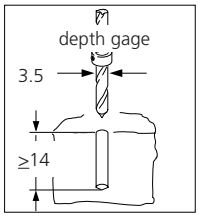
1x stainless steel bolt, 1x code ring, 1x protective cap.

Mounting instructions

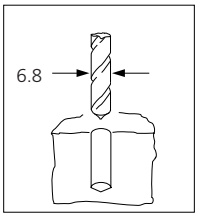
dimensions in mm



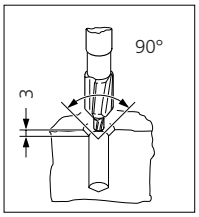
Select position



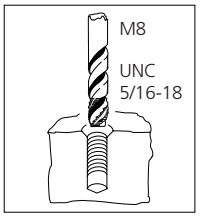
Bore pilot hole



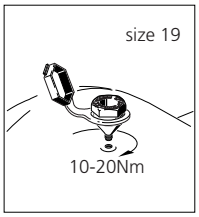
Bore out hole



90° countersink

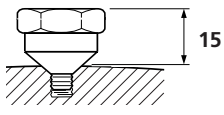


Tap thread



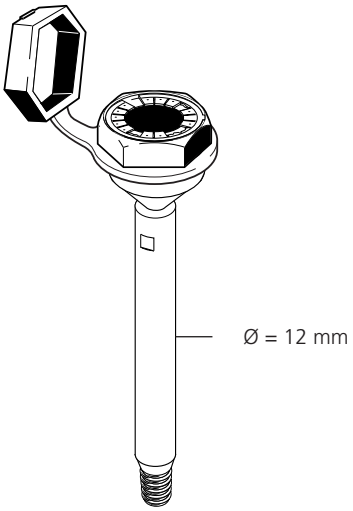
Mount stud

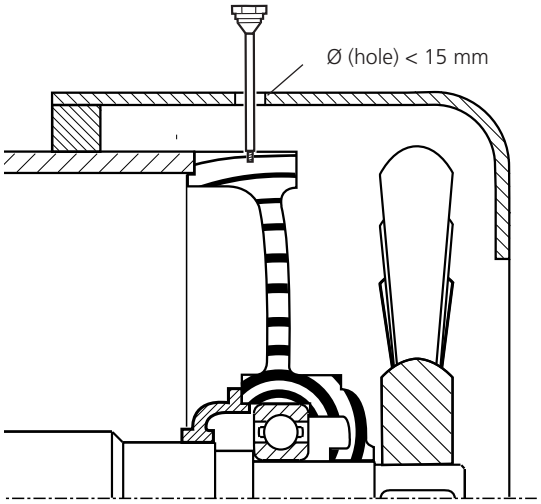
Height



VIBCODE measurement studs with extension post

VIB 8.576 :	VIBCODE measurement stud with extension post, M8 x 55 mm
VIB 8.577 :	VIBCODE measurement stud with extension post, M8 x 95 mm
VIB 8.578 :	VIBCODE measurement stud with extension post, M8 x 170 mm
VIB 8.580 :	VIBCODE measurement stud with extension post, UNC 5/16 x 2 1/8“
VIB 8.581 :	VIBCODE measurement stud with extension post, UNC 3/8 x 3 3/4“
VIB 8.582 :	VIBCODE measurement stud with extension post, UNC 3/8 x 6 5/8“





Application
As its name implies, these studs feature an extra-long shaft to allow measurement in locations where the VIBCODE transducer does not fit directly at the measurement surface. The studs are available in various lengths with an M8 or UNC 5/16 thread at its bottom.

Note
The longest extension (170 mm and 6 5/8“) may be used only for taking shock pulse readings and not for vibration measurement!

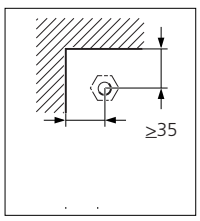
Material
Stainless steel, VA1.4305

Installation accessories
VIB 8.693	M8 screw tap
VIB 8.696	UNC 5/16 screw tap
VIB 8.694	90° countersink bit

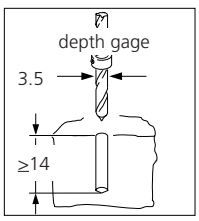
Accessories
VIB 8.563 A25	VIBCODE code rings, 25 pcs.
VIB 8.692	VIBCODE encoding tool
VIB 8.566	Protective cap
VIB 8.568/..	Color coding for protective cap, 25 pcs.

Scope of delivery for one VIBCODE meas. stud
1x stainless steel bolt, 1x code ring, 1x protective cap, 1x extension post.

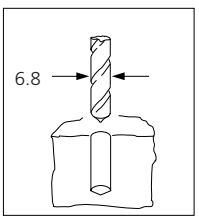
Mounting instructions
dimensions in mm



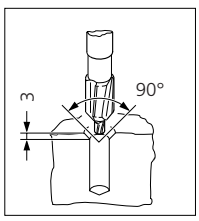
Select position



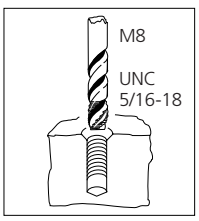
Bore pilot hole



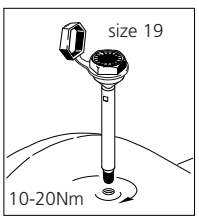
Bore out hole



90° countersink



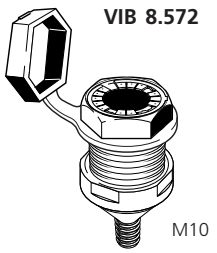
Tap thread

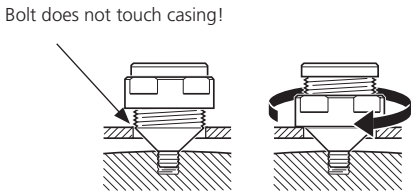


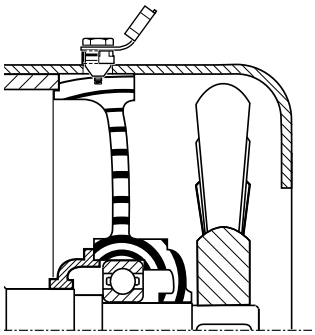
Mount post

VIBCODE measurement studs with locking nut

VIB 8.571 :	VIBCODE measurement stud with locking nut, M8
VIB 8.572 :	VIBCODE measurement stud with locking nut, M10
VIB 8.573 :	VIBCODE measurement stud with locking nut, M12
VIB 8.594 :	VIBCODE measurement stud with locking nut, UNC 5/16
VIB 8.595 :	VIBCODE measurement stud with locking nut, UNC 3/8 - 16
VIB 8.596 :	VIBCODE measurement stud with locking nut, UNC 1/2 -13







Application

The VIBCODE measurement studs with locking nut are ideal for situations such as motor housings where there is little clearance between the actual mounting location (e.g. the bearing housing) and the machine housing. This arrangement can even be used to replace existing housing screws. Once the stud is torqued into the threaded hole prepared for measurement, the counter nut can be tightened against the machine housing.

To ensure optimum signal transmission, the cone of the bolt may only touch the measuring point (e.g. the bearing housing), but not the metal casing.

Material

Stainless steel, VA1.4305

Installation accessories

VIB 8.693	M8 screw tap
VIB 8.696	UNC 5/16 screw tap
VIB 8.694	90° countersink bit

Accessories

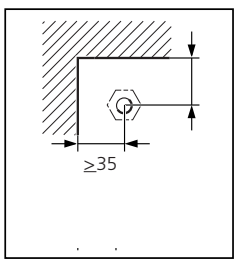
VIB 8.563 A25	VIBCODE code rings, 25 pcs.
VIB 8.692	VIBCODE encoding tool
VIB 8.566	Protective cap
VIB 8.568/..	Color coding for protective cap, 25 pcs.

Scope of delivery for one VIBCODE meas. stud

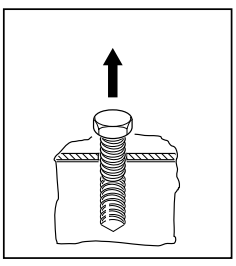
1x stainless steel bolt, 1x code ring, 1x protective cap, 1x locking nut.

Mounting instructions

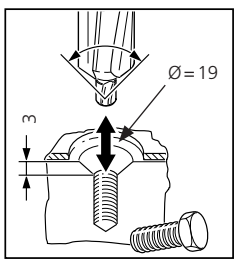
dimensions in mm



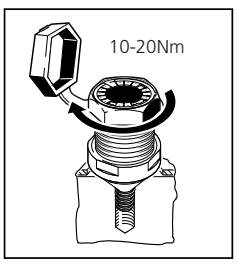
Ensure sufficient clearance



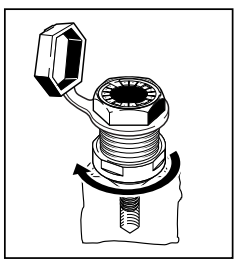
Remove bolt and housing cowling



Countersink hole, bore cowling

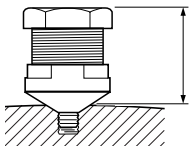


Mount adapter



Fasten locking nut

Height



Height h in mm	Adapter Order no.
28	VIB 8.571 / VIB 8.594
27	VIB 8.572 / VIB 8.595
26	VIB 8.573 / VIB 8.596

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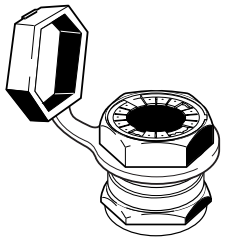
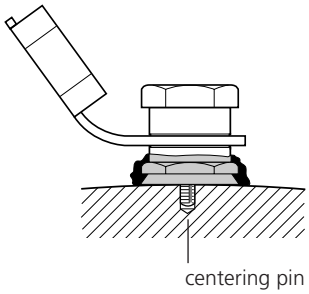
VIBCODE measurement studs for adhesive mounting

VIB 8.685 SET : VIBCODE measurement stud for adhesive mounting, 1 pc.

VIB 8.685 A25 : VIBCODE measurement stud for adhesive mounting, 25 pcs.





Application
These VIBCODE measurement studs are ideal when only adhesive mounting is possible.

Mounting notes
A removable self-threading centering pin may be used if desired to hold the stud in place while the adhesive cures to final hardness.

Material
Stainless steel, VA1.4305

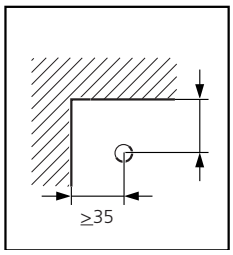
Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Accessories

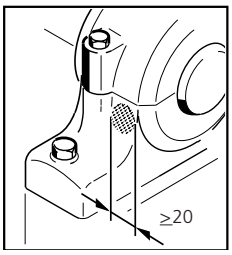
VIB 8.563 A25	VIBCODE code rings, 25 pcs.
VIB 8.692	VIBCODE encoding tool
VIB 8.566	Protective cap
VIB 8.568/..	Color coding for protective cap, 25 pcs.

Scope of delivery for one VIBCODE meas. stud
1x stainless steel bolt, 1x code ring, 1x protective cap.

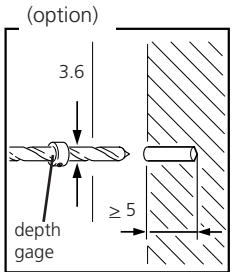
Mounting instructions
dimensions in mm



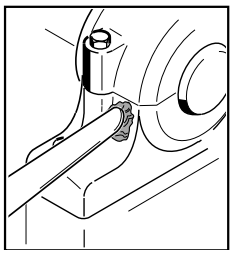
Allow clearance for transducer



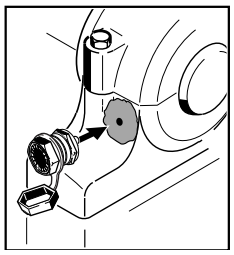
Mounting surface: flat & roughened



(Option: bore hole for centering pin)

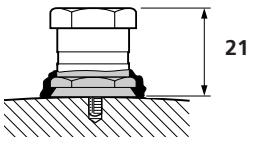


Apply compound to both surfaces



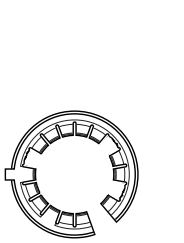
Press & turn adapter into surface

Height

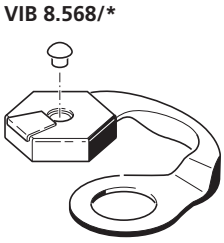


Accessories for VIBCODE measurement studs

VIB 8.563 A25 :	VIBCODE code ring, 25 pcs.
VIB 8.566 :	Protective cap for VIBCODE stud
VIB 8.568/B :	Color coding for protective cap, black, 25 pcs.
VIB 8.568/GN :	Color coding for protective cap, green, 25 pcs.
VIB 8.568/GR :	Color coding for protective cap, gray, 25 pcs.
VIB 8.568/W :	Color coding for protective cap, white, 25 pcs.
VIB 8.568/Y :	Color coding for protective cap, yellow, 25 pcs.
VIB 8.692 :	VIBCODE encoding tool

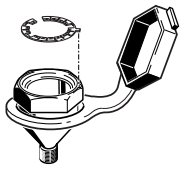


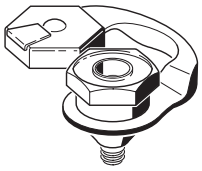
VIB 8.563 A25

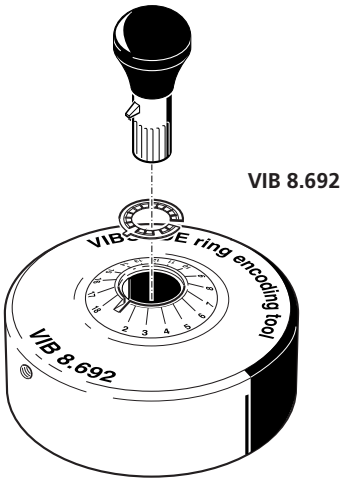


VIB 8.568/*

VIB 8.566







Description

The protective cap VIB 8.566 protects the measurement surfaces and code ring from damage by aggressive industrial materials. Each VIBCODE measurement location can be individually color-coded for easy recognition during route-based data collection.

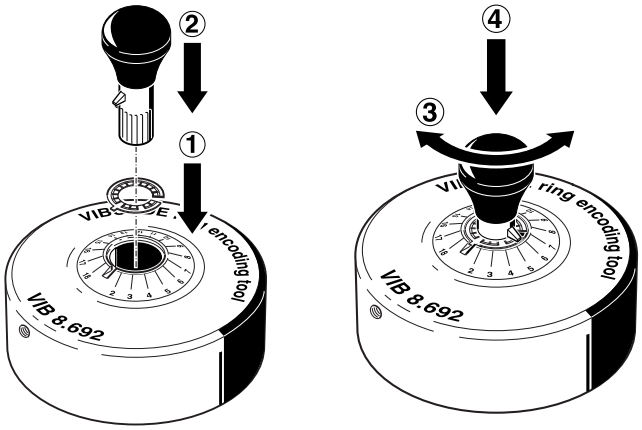
Example:
VIBCODE locations to be measured daily can be marked with black color coding, while green color coding can be used to mark VIBCODE locations that require only weekly measurement.

The plastic tabs of the code ring VIB 8.563 may easily be removed using the VIBCODE encoding tool VIB 8.692 as illustrated above. The ring then fits into the VIBCODE stud; a tab on the outside of the ring provides positive orientation.

Encoding the code ring:
1. Insert code ring
2. Insert plunger
3. Set code number (issued by OMNITREND software)
4. Slowly press down plunger

Technical data

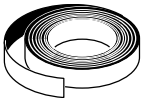
PARAMETER		VIB 8.566	VIB 8.563 A25
General	Material	Desmopan®	Hostaform®
	Temperature range	-30°C ... +100°C	-40°C ... +130°C
	Resistance	oil, coolant	



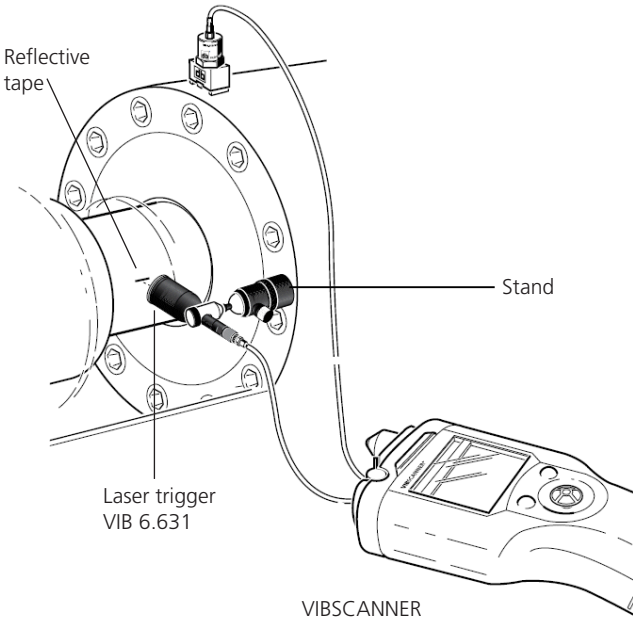
Stand and accessories for laser trigger / laser RPM sensor

VIB 6.632 : Stand for laser trigger / laser RPM sensor
VIB 3.306 : Reflective tape

VIB 6.632



VIB 3.306



Description

This compact and stable stand can be used to quickly and securely mount the laser trigger sensor on any machine.

The laser trigger sensor is fixed in a bracket on the stand and the stand is fastened to the machine with a magnetic holder VIB 3.420. To adjust the sensor, the ball joint can be fixed in virtually any position

The reflective tape VIB 3.306 is used as a measurement mark on the shaft.

Notes

During transport / storage a steel washer as a short-circuit rail is mounted on the pole pieces.

The safety data sheet is available upon request (info@pruftechnik.com) or in the Internet (www.pruftechnik.com).

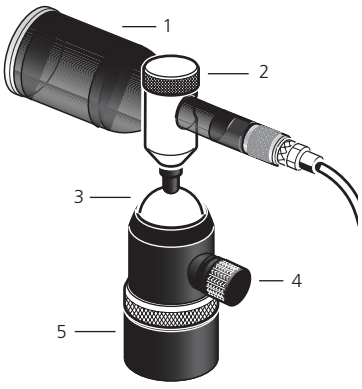
Accessories

VIB 3.420 Magnetic holder, spare part

Technical data

PARAMETER		VIB 6.632
General	Weight	approx. 230 g
	Height	max. 116 mm
	Mounting	magnetic

PARAMETER		VIB 3.306
General	Material	SL7610
	Width	10 mm
	Length	approx. 4.5 m on roll

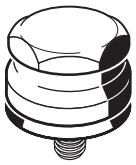


1. Laser trigger sensor
2. Sensor carrier with locking screw
3. Ball joint
4. Locking screw for ball joint
5. Magnetic holder, VIB 3.420

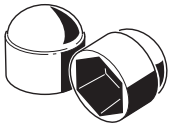
Measurement studs for accelerometer type VIB 8.666

VIB 32000 :	Measurement stud for accelerometer type VIB 8.666, M8x24, nickel-plated
VIB 32010 :	Measurement stud for accelerometer type VIB 8.666, M8x24, stainless steel
VIB 32200 :	Measurement stud for accelerometer type VIB 8.666, M8x113, nickel-plated
VIB 32210 :	Measurement stud for accelerometer type VIB 8.666, M8x113, stainless steel
VIB 32310 :	Measurement stud for accelerometer type VIB 8.666, M8x202, stainless steel
VIB 32410 :	Measurement stud for accelerometer type VIB 8.666, M8x291, stainless steel
VIB 33000 A25 :	Measurement stud for accelerometer type VIB 8.666, adhesive mount, stainless steel, 25 pcs.
VIB 81025:	Protective cap for measurement stud, black

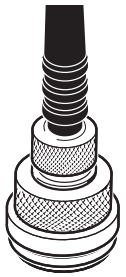
VIB 32xxx



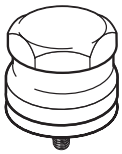
VIB 33000



VIB 81025



VIB 8.666



VIB 33000

Adhesive connection patented:
U.S. patents 6,706,367 / 6,805,943 B2

Application

These measurement studs are used to mount the accelerometer type VIB 8.666 on the machine. They represent a defined measurement location and are very robust and resilient.

The stud VIB 33000 is used when only adhesive mounting is possible. A removable self-threading centering pin may be used if desired to hold the stud in place while the adhesive cures to final hardness.

The measurement studs VIB 32xxx are the standard studs for the accelerometer type VIB 8.666.

Studs made out of high quality stainless steel (composite VA 1.4305) are particularly suited for applications in exceptionally harsh chemical environments.

Installation material for adhesive mount:
2-component adhesive (e.g. WEICON HB 300).

Accessories

VIB 81025 Protective cap for measurement stud

Installation accessories

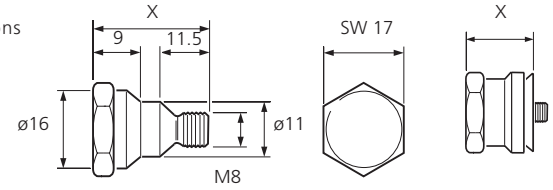
VIB 8.693 M8 screw tap
VIB 8.694 90° countersink bit

Technical data

PARAMETER		VIB 32000	VIB 32200	VIB 32010	VIB 32210	VIB 32310	VIB 32410	VIB 33000
General	Material	9 SMn28K (W.Nr. 1.0715.07), nickel-plated		Stainless steel (VA 1.4305)				
	Height X	24 mm	113 mm	24 mm	113 mm	202 mm	294 mm	14 mm
	Dimensions	see figure below						

PARAMETER		VIB 81025
General	Material	LDPE
	Operating temp.	< 70°C
	Height	19 mm
	Wrench size	17

Dimensions in mm



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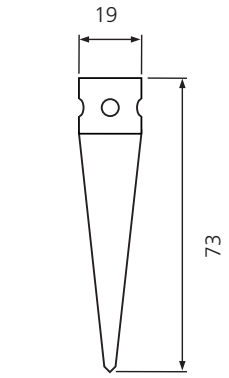
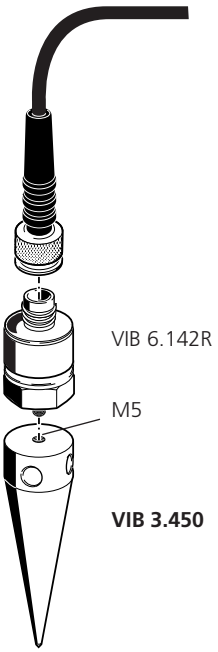
VIB 3.450: Probe tip for mobile industrial accelerometer type VIB 6.14x



Dimensions
in mm



Application

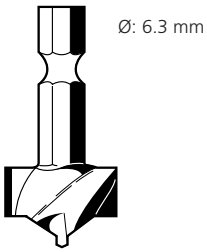
The accelerometer type VIB 6.14x can be used as a mobile hand-held probe through use of a contact tip.

Technical data

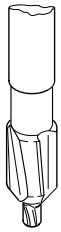
PARAMETER		VIB 3.450
General	Material	Aluminium
	Weight	30 g
	Dimensions	s. figure

Tools for the installation of accelerometers and for the preparation of meas. locations

VIB 8.610 :	PRÜFTECHNIK counter sink bit
VIB 8.693 :	M8 thread tap
VIB 8.694 :	90° counter sink bit
VIB 8.696 :	UNC5/16 thread tap



VIB 8.610



VIB 8.693
VIB 8.696

VIB 8.694

Application

The PRÜFTECHNIK countersink bit VIB 8.610 should always be used to prepare the location for VIBROTIP's, VIBSCANNER's or TIPTECTOR's vibration and shock pulse sensor. The countersink produces a hole smaller than the built-in sensor. A ring-shaped contact area is thereby created between the sensor and the measurement surface, providing optimal signal transmission. And as an important side benefit for reliable comparison between successive readings: this clearly marks the measurement location so that readings are always taken in the exact same spot.

The bit has a hexagonal shaft compatible with a standard battery-operated screwdriver. This is recommended in preference to an electric drill as only a relatively shallow countersunk hole is needed.

Notes

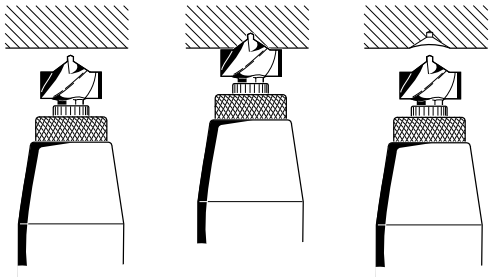
on how to prepare the measurement location:

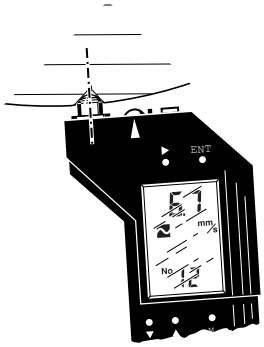
1. Clean and then mark the exact desired measurement location.
2. Drill with a battery operated screwdriver until the rim of the countersink is level with the measurement surface (see below).
3. Blow any shavings out of the hole with compressed air (using a thin hose or tube).

Make sure that the hole is completely free of metal particles, which otherwise could contact the sensor and interfere with proper signal transmission. Place the accelerometer as perpendicular to the surface as possible. Otherwise, the measuring direction does not correspond to the ISO standards!

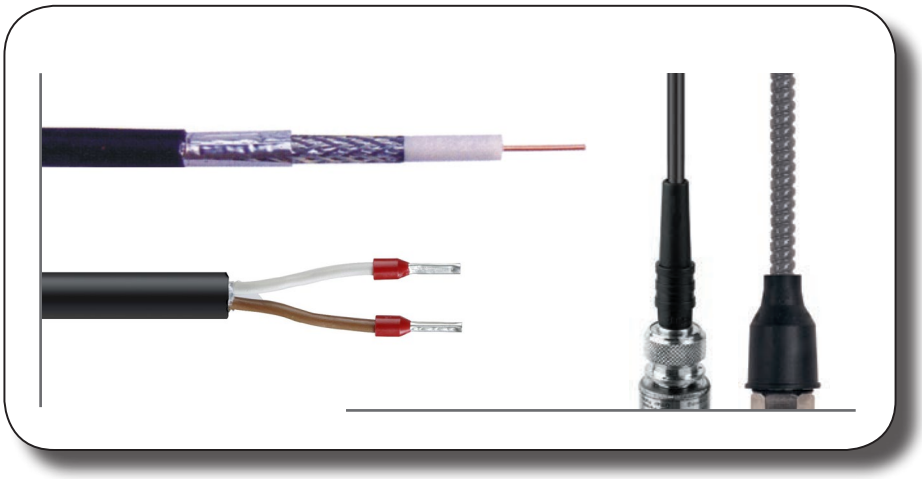
The thread taps VIB 8.693 and VIB 8.696 and the 90° counter sink bit VIB 8.694 are used to prepare measurement locations for industrial accelerometer mounting.

In addition, drill bits of sizes 3.5 mm (1/8") (with depth gage) and 6.8 mm (1/4") are required.

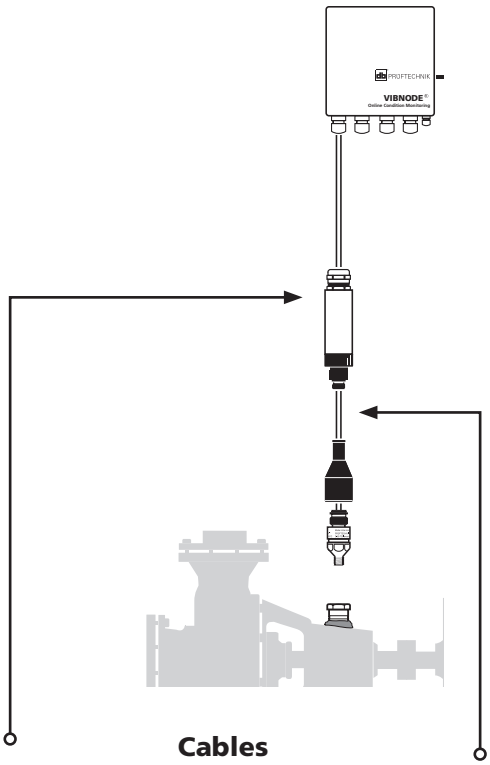




Chapter 4
Cables, interfaces and accessories for permanent installation



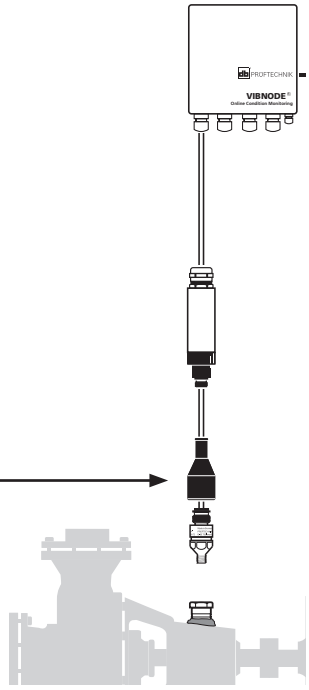
Contents: Cables, interfaces and accessories for permanent installation



Interfaces

Cables

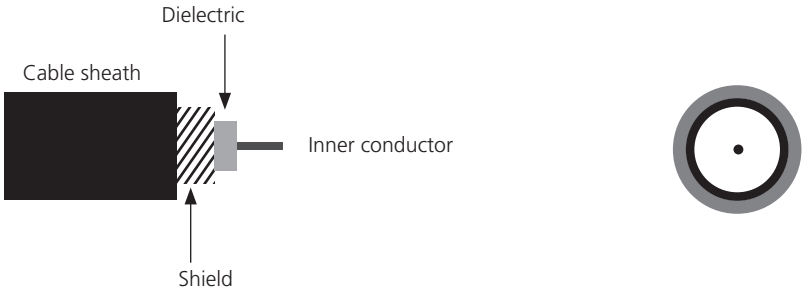
Contents: Cables, interfaces and accessories for permanent installation



Accessories for cable installation

Coaxial cables for permanent installation

VIB 90006 :	Coaxial cable for hazardous areas, PVC cable sheath, blue
VIB 90007 :	Coaxial cable for high ambient temperatures (< 150°C), oil-resistant
VIB 90008 :	Coaxial cable for low ambient temperatures (> - 40°C)
VIB 90009 :	Coaxial cable, halogen free and highly flame retardant
VIB 90093 :	Coaxial cable for high ambient temperatures (< 125°C), oil-resistant



Application

Coaxial cables (RG 58) are used for the transmission of high frequency measurement signals. For special applications the coaxial cables are available in different versions.

Accessories

VIB 6.730 Protective sheath for coaxial cables
VIB 8.718 Cable clamp for protective sheath
VIB 81052 Cutting tool for coaxial cables

Order information

Add the required cable length to the order number.

Example: Coaxial cable, 250 meters
Order no.: VIB 90008-250

Bundle: Ring up to 100 meters,
Roll up to 500 meters

Technical data

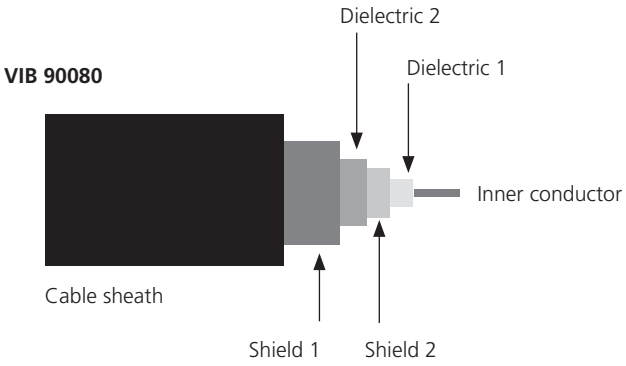
PARAMETER		VIB 90007	VIB 90006	VIB 90008	VIB 90009	VIB 90093
Measurement	Type	RG 142 B/U	RG 58			
	Char. impedance	50 Ohm				
	Capacitance	95 nF/km	101 nF/km	101 nF/km	101 nF/km	105 nF/km
	Attenuation[1]	28 dB/100m	38 dB/100m	32 dB/100m	38 dB/100m	46 dB/100m
Cable design	Inner conductor	Steel, Cu + Ag	Cu strand, tinned			
	Dielectric	PTFE	PE white	MDPE white	PEX (PE cross-linked)	Rayolin™
	Shield	2xCu braid, Ag	Cu braid, tinned			
	Sheath	FEP, brown	PVC, blue	MDPE, black	RADOX GKW S, black	Thermorad® S, black
Mechanical	Temperature range	-65°C ... + 165°C	-25°C ... + 85°C	-40°C ... + 80°C	-25°C ... + 105°C	-50°C ... + 125°C
	Bending radius	50 mm				
	External diameter	5 mm				
	Weight	6.4 kg / 100 m	3.7 kg / 100 m	4 kg / 100 m	4 kg / 100 m	3.5 kg / 100 m
	Special features	oil resistant, double screened	hazardous area (blue sheath)	halogen free IEC 60708	halogen free, highly flame retardant	oil resistant

[1] at 400 MHz / 25°C / sea level

Triaxial cables for permanent installation

VIB 90080 : Standard triaxial cable

VIB 90180 : Standard triaxial cable, armored version



Application

Triaxial cables are used for the transmission of high frequency measurement signals. The cable has two screening conductors and a inner conductor. Thus, triaxial cables are particularly suitable for use in industrial environments that are subject to electromagnetic fields.

The armored version has an additional jacket of steel for increased mechanical protection (against vermin, mouse bites, ...).

Note

The cable sheath of the armored version VIB 90180 does not contain any silicone or talcum and, as a result, can also be used in the automotive industry (e.g. paint shops).

Accessories

VIB 81053 Cable stripper for triaxial cables
VIB 81054 Replacement blade for cable stripper

Order information

Add the required cable length to the order number.

Example: Standard triaxial cable, 250 meters
Order no.: VIB 90080-250

Bundle: Ring up to 100 meters,
Roll up to 500 meters (VIB 90080) or
250 meters (VIB 90180)

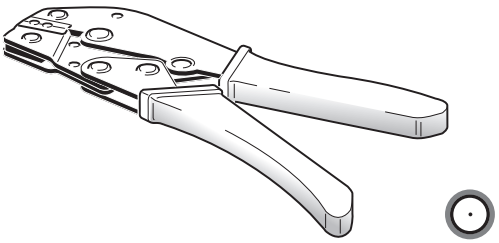
Technical data

PARAMETER		VIB 90080	VIB 90180
Electrical	Type	RG 58	
	Char. impedance	50 Ohm	
	Capacitance	approx. 105 nF/km (1kHz)	-
	Attenuation	34 dB/100m (300 MHz, 20°C)	-
Cable design	Inner conductor	Cu braid, tinned	
	Dielectric	PE	
	Shield	Cu strand, tinned	
	Sheath	PUR	PUR; armouring: steel braid, tinned
Mechanical	Temperature range	-40°C ... + 80°C	-10°C ... + 80°C
	Bending radius	50 mm	60 mm
	External diameter	10 mm	14 mm*
	Weight	12.6 kg / 100 m	-
	Special features	silicone free, UV-stabilized, flame retardant (IEC 60332-1-2), RoHS compliant (2002/95/EG)	silicone free talkum free UV-stabilized

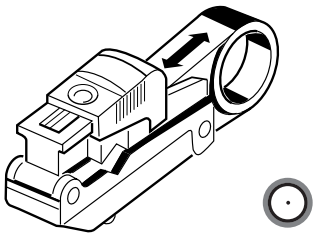
* not suitable for standard threaded fittings (M20) of the VIBRONET 9-channel field multiplexers (VIB 8.306).

Installation tools for coaxial, triaxial and twisted-pair cables

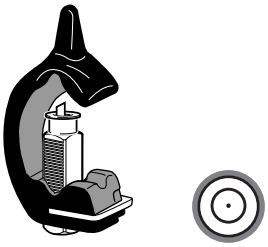
VIB 81026 :	Crimping tool for coaxial cables
VIB 81052 :	Cutting tool for coaxial cables
VIB 81053 :	Cable stripper for triaxial cables
VIB 81054 :	Replacement blade for cable stripper VIB 81053



Crimping tool for coaxial cables
VIB 81026



Cutting tool for coaxial cables
VIB 81052



Cable stripper for triaxial cables
VIB 81053

Application

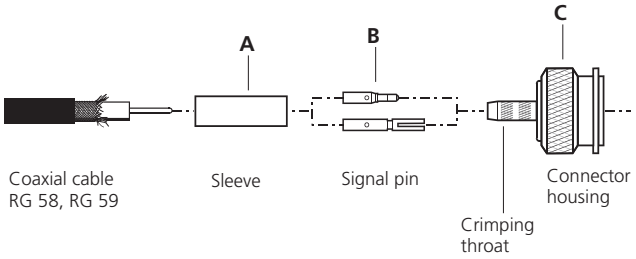
The crimping tool is a special pliers and is used to crimp coaxial cables (RG 58 / RG 59).

The VIB 81052 cutting tool cleanly strips the ends of coaxial cables for proper connection.

The cable stripper VIB 81053 is ideal for stripping wires with a diameter of 6 mm to 28 mm.

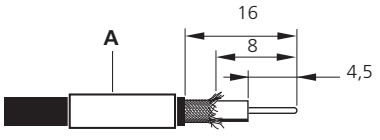
Instructions for crimping (BNC/ TNC)

- Slide sleeve A onto the cable.



- Strip the insulation of the cable as shown in diagram.

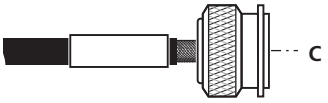
CAUTION!
Do not damage the shielding, dielectric or inner conductor!



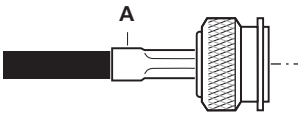
Dimensions in mm

- Push signal pin B over the cable inner conductor up to the dielectric and crimp it.

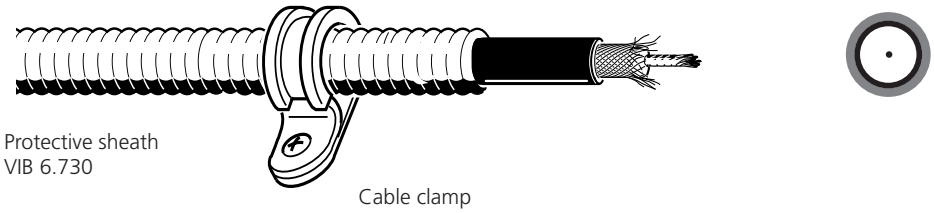
- Spread the shielding slightly apart and insert the cable into the connector housing C. The shielding must lie over the crimping throat.



- Push sleeve A over the shielding and crimp as close as possible to housing C.



VIB 6.730 : Protective sheath for standard coaxial cables



Application

A protective sheath made of plastic protects the standard coaxial cables against mechanical damage. Cable clamps should be used for strain relief.

Accessories

VIB 8.718 Cable clamp for protective sheath

Order information

Add the required cable length to the order number.

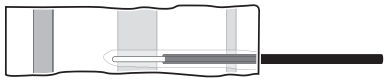
Example: Protective sheath, 250 meters
Order no.: VIB 6.730-250

Technical data

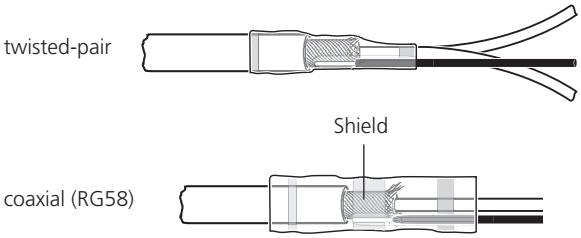
PARAMETER		VIB 6.730
Cable design	Material	Polyamide 6, color: black
	Nominal diameter	6.5 mm
	External diameter	10 mm
	Bending radius	13 mm
Environment	Temperature range	-40°C ... + 115°C
	Chemical resistance	Oil, petrol
	Environmental influences	UV and weather resistant
	Special features	flame-retardant, self-extinguishing in acc. with UL94 V0, silicone, cadmium, halogen free

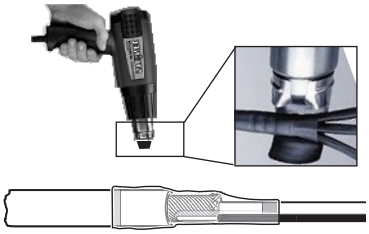
C 1 2 3 4 5 6 A

VIB 6.725-100 : Shield connector set for coaxial and twisted-pair cables



Solder connector Ground lead





Application

The soldering bush simplifies the task of connecting the shield of the coaxial and twisted pair cables. These cable types are used as sensor lines in the PRÜFTECHNIK online condition monitoring systems. The method eliminates the time-consuming preparation of a shielding braid.

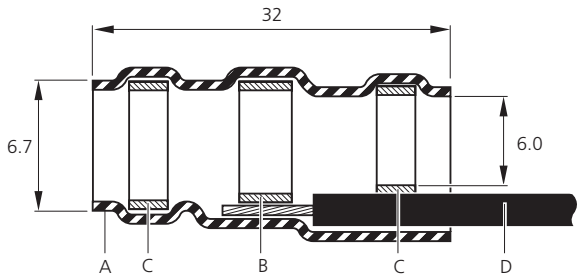
Installation

The soldering bush is pulled onto the stripped end of the wire and shrunk onto it using a hot air gun. In the process, the inner tinned ring solders the shielding braid to the wire in the bush. At the same time, both ends of the soldering bush are sealed cleanly and tightly. The quality of the soldered connection can be checked through the transparent bush.

Note

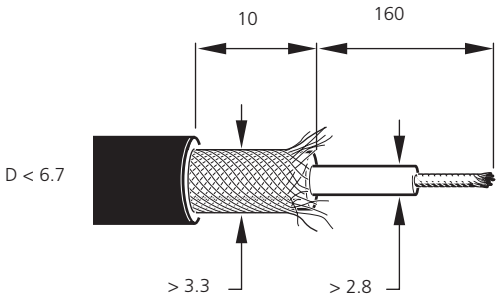
To avoid damaging the cable with the hot air gun and to focus the air jet onto the soldering point, a suitable reduction nozzle is needed.

Product specification and dimensions



Material
A Sleeve:
Polyolefin, transparent, heat-shrinkable
B Solder preform with flux:
Cd18 per ANSI/J-STD-006 / ROM1 per ANSI/J-STD-004
C Meltabel sealing ring:
Thermally stabilized thermoplastic
D Ground lead:
Stranded tin plated copper, size: AWG22 (0,38 mm²),
Raychem polyethylene wire, length: approx. 160mm, color: green

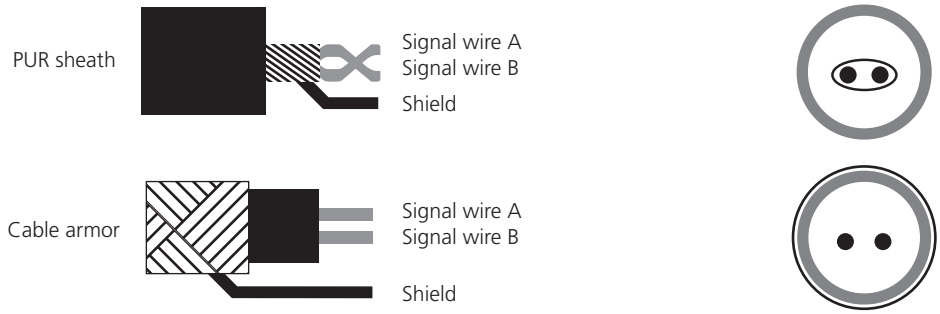
Strip the cable according to illustration
Dimensions in mm



Two-wire, shielded sensor cables for permanent installation

VIB 90061 : Shielded twisted-pair sensor cable, PUR sheath

VIB 90065 : Stranded sensor cable, silicone sheath and cable armor



Application for twisted-pair cable VIB 90061

The cable is used with the VIBROTECTOR vibration transmitter and in the VIBNODE Online Condition Monitoring System with the following transducers:

- VIB 6.195 - CLD-type accelerometer
- VIB 6.172 - ICP-type accelerometer

Special features

This cable

- is resistant against mineral oil and hydraulic fluid
- is halogen free and flame-retardant (IEC 60332-1-2).
- is notch resistant
- is insensitive against electrical interference
- contains no paint-wetting substances

Application for stranded cable VIB 90065

Connects the VIBROTECTOR vibration transmitter to a PCS. Resists high temperatures and is used if high mechanical strength is required. Only suitable for use in dry conditions.

Special features

The stranded cable

- has a wide temperature range: -50°C..+180°C
- has an outer sheath which is covered with a tight braid of galvanized steel wires as mechanical protection for the cable and for electrical screening.
- is halogen free and flame-retardant (IEC 60332-1-2).

Order information

Add the required cable length to the order number.

Example: Twisted-pair cable, 250 meters
Order no.: VIB 90061-250

Technical data

PARAMETER		VIB 90061	VIB 90065
Electrical	Char. impedance	72 Ohm	87 Ohm
	Capacitance (w/w)	approx. 86 nF/km ±10%	approx. 73 nF/km
	Inductance	approx. 0.75 mH/km	approx. 0.55 mH/km
	Nominal voltage U_0/U	300 / 500 V	
Cable design	Conductor	2 x 0.50 mm²	2 x 0.75 mm², fine wire
	Insulation	Co-polymer	silicone-based
	Stranding	twisted-pair	stranded together
	Shielding	Cu braid, tin-coated	Steel wire braiding
	Sheath	PUR Polyurethane, black	silicone-based, glass fibre wrapping, galvanized steel wires
Mechanical	Temperature range	-40°C ... + 85°C, static	-50°C ... + 180°C
	Bending radius, flexing	> 84 mm	> 160 mm
	-, static	> 34 mm	> 30 mm
	Outer diameter	approx. 5.6 mm	approx. 8 mm
	Weight	--	90.5 kg/km
	Special features	halogen free and flame retardant (IEC 60332-1-2)	
	Signal wire color code	BN (brown), WH (white)	BN (brown), BU (blue)

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VIB 90070 : Multi-core twisted-pair sensor cable

Application

The multi-core cable combines up to 6 sensor cables (VIB 90061) in the VIBROWEB online condition monitoring system.

Note

The twisted-pair cable design minimizes crosstalk. The overall shielding reduces interference of adjacent lines.

Order information

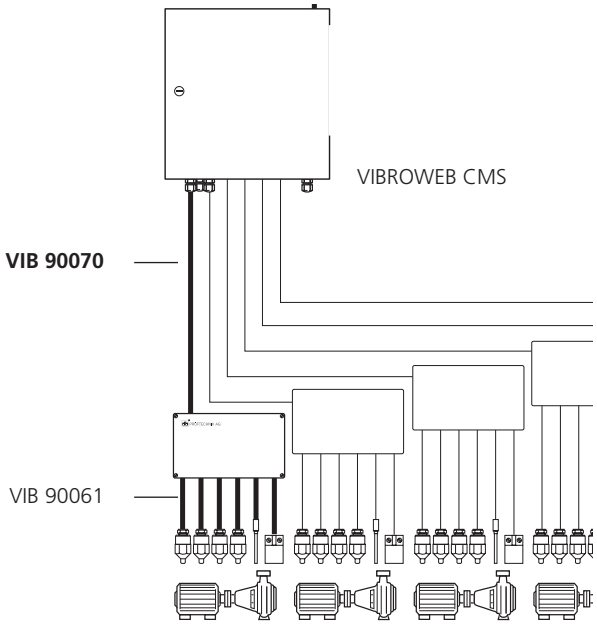
Add the required cable length to the order number.

Example: Multi-core sensor cable, 250 meters
Order no.: VIB 90070-250

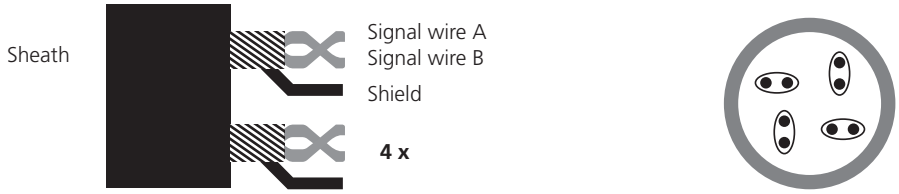
Bundle: 500 meters on cable drum

Technical data

PARAMETER		VIB 90070
Electrical	Characteristic impedance	approx. 65 Ohm
	Mutual capacitance (A/A)	approx. 140 nF/km
	Inductance	approx. 0.65 mH/km
Cable design	Conductor	6 x 2 x 0.25 mm², Cu, fine-wire strands
	Shielding	Pair screening: wrapping of Cu wires Outer shield: Cu braid, tinned
	Outer sheath	PUR, black, halogen free, UV stabilized
Mechanical	Temperature range	-40°C ... + 80°C, static
	Outer diameter	approx. 17.5 mm ± 0.5 mm
	Bending radius, static	> 108 mm
	Signal wire color code	in each pair: one wire white (WH), 2nd wire acc. to DIN 47100



VIB 90030 : Industrial Ethernet cable for WEARSCANNER (CAT5)



Application
This multi-core cable is used as a data and power cable for the WEARSCANNER particle counter.

Note
The twisted-pair cable design minimizes crosstalk. The overall shielding reduces interference of adjacent lines.

Order information
Add the required cable length to the order number.

Example: Ethernet cable for WEARSCANNER, 25 meters
Order no.: VIB 90030-25

Accessories
VIB 6.421 M12 cable connector for power supply and data transmission (8-pin).
VIB 6.425 M12 cable connector for for switching output (5-pin)

Technical data

PARAMETER		VIB 90030
Electrical	Characteristic impedance	approx. 100 Ohm ± 15 Ohm (1 ...100 MHz)
	Mutual capacitance (nom.)	approx. 48 nF/km
	Attenuation	33 dB/100m (100 MHz)
	Test voltage	0.7 kV
Cable design	Conductor	4 x 2 x 0.15 mm², Cu braid
	Insulation	PP
	Stranding	twisted-pair
	Shielding	Polyester foil over stranded bundle Polyester foil aluminium-lined Total: Cu braid, tin-coated
	Sheath	PUR, green, drag chain suitable
	Standards fulfilled	flame retardant (IEC 60332-1), halogen free (IEC 60754-2), Category 5e (CAT 5), corrosivity (EN50267-2-3), UL style 20963 (80°C/30V)
Mechanical	Temperature range	-40°C ... + 80°C
	Outer diameter	approx. 6.8 mm ± 0.3 mm
	Bending radius	> 102 mm
	Weight	approx. 56 kg/km

C

Pre-assembled cables for VIBROTECTOR and CLD-/ICP-type accelerometers

1

VIB 5.740-X : Pre-assembled sensor cable, silicone sheath and cable armor, straight connector

VIB 5.741-X : Pre-assembled sensor cable, silicone sheath and cable armor, angled connector

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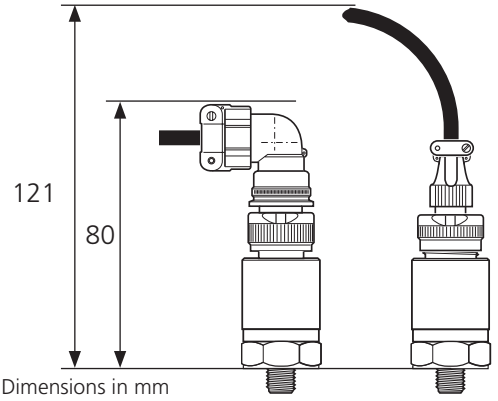
VIB 5.740-X

Gas

VIB 5.741-X



Dimensions in mm

Application

These sensor cables are already fitted with a suitable connector on the sensor side. The open end of the cable is for the connection to an online CMS or to a PCS (VIBROTECTOR only).

The cables can be used to install the following sensors OUTSIDE the hazardous area:

VIB 5.73x VIBROTECTOR vibration transmitter
VIB 6.172 ICP-type accelerometer
VIB 6.195 CLD-type accelerometer

INSIDE the gas-explosion hazardous area the cables can be used with the following sensors:

VIB 5.73x EX VIBROTECTOR, intrinsically safe
VIB 6.172XICP ICP-type accelerometer, intrinsically safe

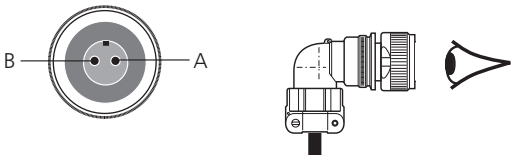
The operation in dust-explosion hazardous areas is not allowed.

Accessories

VIB 6.776 Junction box for the extension of a twisted-pair sensor cable.

Technical data

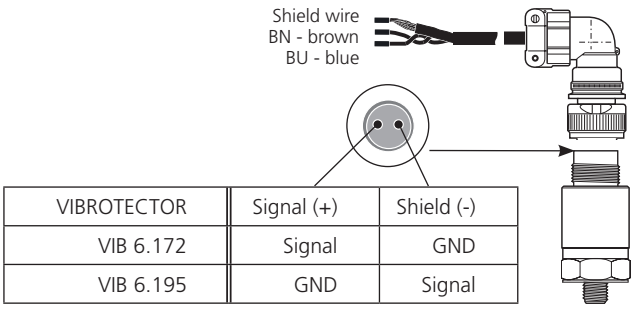
	VIB 5.740-X / VIB 5.741-X	
Cable type	Stranded sensor cable, silicone sheath and cable armor, VIB 90065	
Connector	Type: 2-pin, MIL-C5015 Material: Aluminum alloy Surface: Zinc Nickel (A 240) Order no.: VIB 94010 (streight), VIB 94011 (angled)	
Standard length X	5 meters, 10 meters	
Pin assignment	**A**	**B**
Color code	BN - brown	BU - blue



Example:

Color code of the sensor signal pin?

SENSOR		KABEL
Type	**Pin polarity**	**Color code**
VIBROTECTOR	Signal (+)	BN - brown
VIB 6.172	Signal	BN - brown
VIB 6.195	Signal	BU - blue

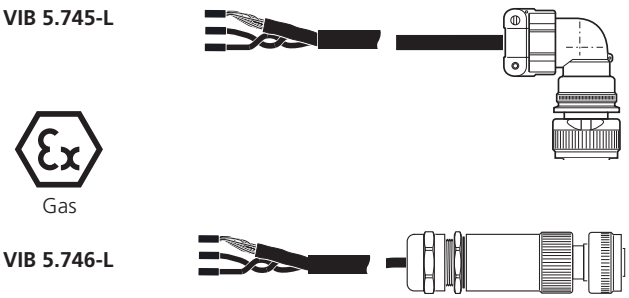


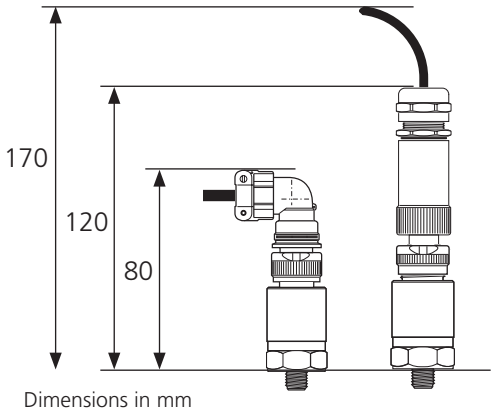
VIBROTECTOR	Signal (+)	Shield (-)
VIB 6.172	Signal	GND
VIB 6.195	GND	Signal

Pre-assembled cables for VIBROTECTOR and CLD-/ICP-type accelerometers

VIB 5.745-L : Pre-assembled sensor cable, PUR sheath, angled connector

VIB 5.746-L : Pre-assembled sensor cable, PUR sheath, straight connector (Stainless steel VA 1.4305)





Dimensions in mm

Application

These sensor cables are already fitted with a suitable connector on the sensor side. The open end of the cable is for the connection to an online CMS or to a PCS (VIBROTECTOR only).

The cables can be used to install the following sensors OUTSIDE the hazardous area:

VIB 5.73x VIBROTECTOR vibration transmitter
VIB 6.172 ICP-type accelerometer
VIB 6.195 CLD-type accelerometer

INSIDE the gas-explosion hazardous area the cables can be used with the following sensors:

VIB 5.73x EX VIBROTECTOR, intrinsically safe
VIB 6.172XICP ICP-type accelerometer, intrinsically safe

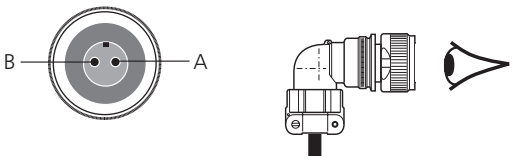
The operation in dust-explosion hazardous areas is not allowed.

Accessories

VIB 6.776 Junction box for the extension of a twisted-pair sensor cable.

Technical data

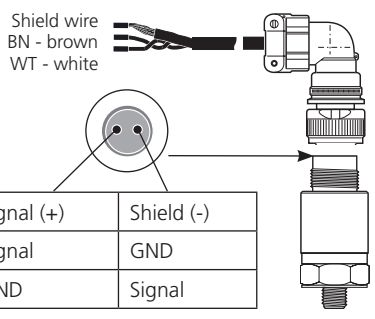
CABLE	VIB 5.745-L		VIB 5.746-L	
Cable type	Shielded twisted-pair sensor cable, PUR sheath, VIB 90061			
Connector	Type: 2-pin, MIL-C5015 Material: Aluminum alloy Surface: Zinc Nickel (A 240) Order no.: VIB 94011		Type: 2-pin, MIL-C5015 Material / Surface: Stainless steel VA 1.4305	
Standard length L	5 meters, 10 meters		10m, 15m, 20m	
Pin assignment	**A**	**B**	**A**	**B**
Color code	WT - white	BN - brown	WT - white	BN - brown



Example:

Color code of the sensor signal pin?

SENSOR		KABEL
Type	**Pin polarity**	**Color code**
VIBROTECTOR	Signal (+)	WT - white
VIB 6.172	Signal	WT - white
VIB 6.195	Signal	BN - brown



VIBROTECTOR	Signal (+)	Shield (-)
VIB 6.172	Signal	GND
VIB 6.195	GND	Signal

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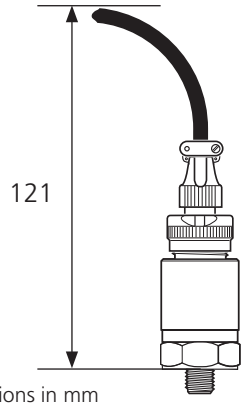
VIB 3.570-L : Pre-assembled cable for intrinsically safe VIBROTECTOR and ICP-type accelerometers



Dimensions in mm

gas & dust

Application

This sensor cable is already fitted with a suitable connector on the sensor side. The open cable end is for the connection to an online CMS or to a PCS (VIBROTECTOR only).

Inside the hazardous area the cable can be used with the following sensors:

VIB 5.73x EX VIBROTECTOR EX vibration transmitter
VIB 6.172 XICP ICP- type accelerometer, intrinsically safe

The operation in gas- and dust-explosion hazardous areas is permitted.

Accessories

VIB 6.776 Junction box for the extension of a twisted-pair sensor cable.

Special feature

The interface between the cable and plug is hermetically sealed (IP 68). This means it is suitable for use under water or in an oil bath (up to 0.8 bar). The shield is not connected with the plug.

Abbreviations
PCS: Process control system
CMS: Condition Monitoring System
ICP: Integrated Circuit Piezoelectric (sensor w/ voltage output)

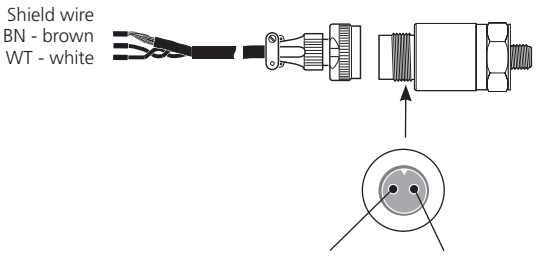
Technical data

CABLE	VIB 3.570-L	
Cable type	Shielded twisted-pair sensor cable, PUR sheath, VIB 90061	
Connector	Type: 2-pin, MIL-C5015 Material: Aluminum alloy Surface: Zinc Nickel (A 240) Order no.: VIB 94010	
Standard length L	6 meters, 12 meters	
Pin assignment	**A**	**B**
Color code	WT - white	BN - brown

Example:

Color code of the sensor signal pin?

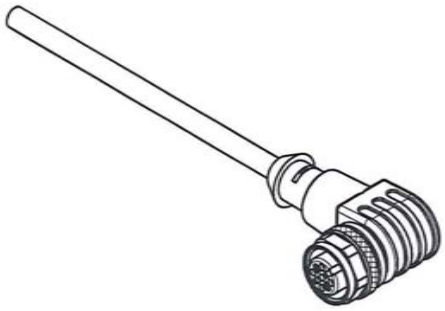
SENSOR		CABLE
Type	**Pin Polarity**	**Color Code**
VIB 6.172XICP, ICP-type accel.	Signal	WT - white
	GND	BN - brown
VIBROTECTOR EX	Signal (+)	WT - white
	Shield (-)	BN - brown



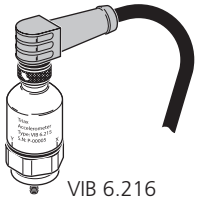
VIB 6.172XICP	Signal	GND
VIBROTECTOR EX	Signal (+)	Shield (-)

Sensor cable for hybrid triaxial accelerometers

VIB 3.575-10 :	Sensor cable for hybrid triaxial accelerometers (VIB 6.215 / VIB 6.216), 10 meters
VIB 3.575-20 :	Sensor cable for hybrid triaxial accelerometers (VIB 6.215 / VIB 6.216), 20 meters



VIB 3.575-10



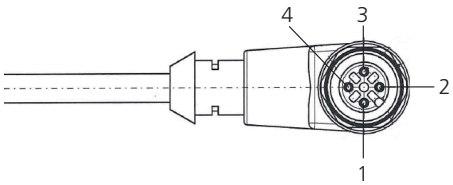
VIB 6.216

Application

This sensor cable is used to connect the hybrid triaxial accelerometers (type: VIB 6.215 or VIB 6.216) to the VIB-GUARD online CMS*.

*CMS: Condition Monitoring System

Plug pin allocation



VIB 3.575-10 / VIB 3.575-20	
Cable sheath	PUR UL, black
Pin: color code	1: BN - brown 2: BU - blue 3: BK - black 4: drain wire (shield)

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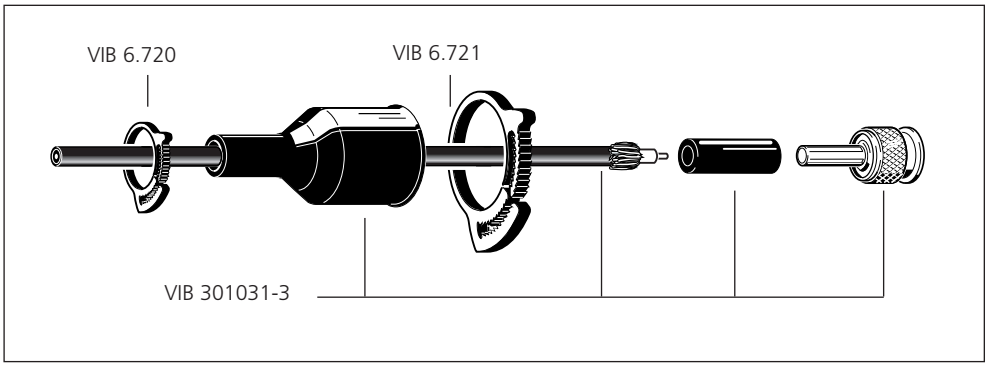
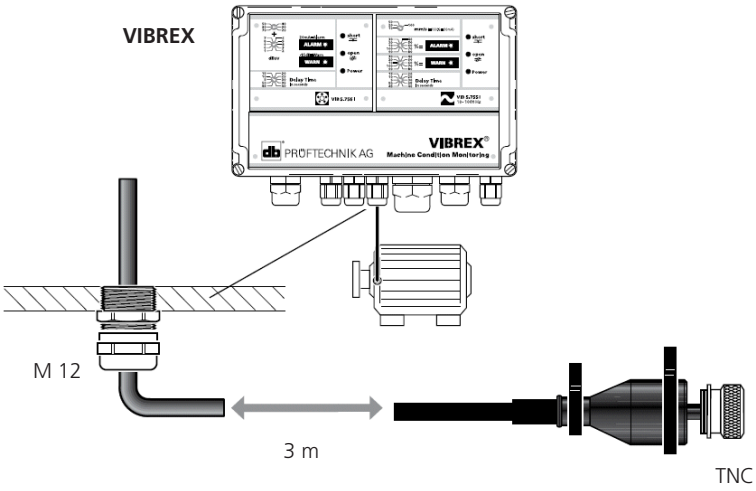
VIB 5.771 : Pre-assembled VIBREX cable

VIB 5.771 =





Application

This coaxial cable is used by default for the connection of industrial accelerometers (type: VIB 6.1xx) to the VIBREX basic unit. The cable is 3 meters long.

Cable type

In this cable the coaxial cable VIB 90008 is used.

Accessories

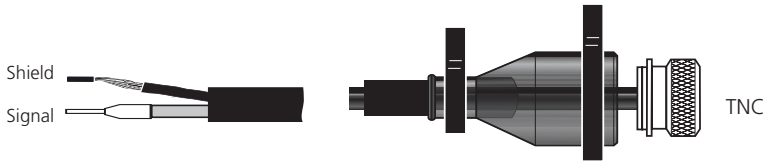
VIB 6.770/9 Junction box for the extension of a single coaxial sensor cable.

VIB 6.775/9 Junction box for the extension of two coaxial sensor cables.

Pre-assembled VIBNODE cables

VIB 309007-6 :	Pre-assembled twisted-pair VIBNODE cable, PUR sheath, 6 meters long
VIB 309007-10 :	Pre-assembled twisted-pair VIBNODE cable, PUR sheath, 10 meters long
VIB 309007-15 :	Pre-assembled twisted-pair VIBNODE cable, PUR sheath, 15 meters long
VIB 309007-20 :	Pre-assembled twisted-pair VIBNODE cable, PUR sheath, 20 meters long
VIB 7.115-6 :	Pre-assembled coaxial VIBNODE cable, PVC sheath, 6 meters long
VIB 7.115-12 :	Pre-assembled coaxial VIBNODE cable, PVC sheath, 12 meters long

VIB 309007-...



VIB 7.115-...

Application

These cables are used by default for the connection of the following industrial accelerometers to the VIBNODE basic unit.

Coaxial cable, VIB 7.115-...:
VIB 6.1xx Industrial accelerometer w/ TNC socket

Twisted-pair cable, VIB 309007-...:
VIB 6.172 ICP- type accelerometer w/ MIL socket
VIB 6.195 CLD- type accelerometer w/ MIL socket

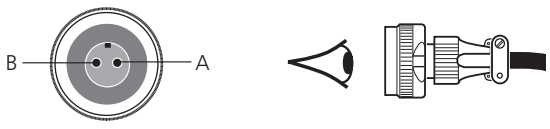
Cable type

In these cables the shielded twisted-pair sensor cable with PUR sheath (VIB 90061) and the coaxial cable VIB 90008 is used.

Accessories

VIB 6.770/9 Junction box for the extension of a single coaxial sensor cable.
VIB 6.775/9 Junction box for the extension of two coaxial sensor cables.
VIB 6.776 Junction box for the extension of a twisted-pair sensor cable.

Plug pin allocation



CABLE	VIB 309007-...	
Pin	**A**	**B**
Color code	WT - white	BN - brown

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Pre-assembled WEARSCANNER cables

VIB 6.420-L : Pre-assembled WEARSCANNER cable for power supply & data transmission incl. M12 connector VIB 6.421

VIB 6.426-L : Pre-assembled WEARSCANNER cable for switching output, incl. M12 connector VIB 6.425

Application

These cables are available as an accessory for the WEARSCANNER particle counter. They are used for the connection of the power and data line and for the connection of the switching signal output to a process control system respectively. The maximum cable length is 20 meters.

Cable type

In these cables the Industrial Ethernet cable (VIB 90030) is used.

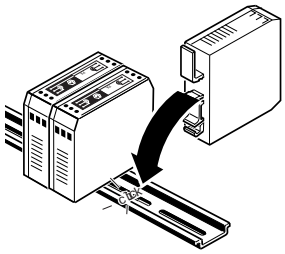
Accessories

VIB 6.421 M12 cable connector for power supply and data transmission (8-pin).

VIB 6.425 M12 cable connector for for switching output (5-pin)

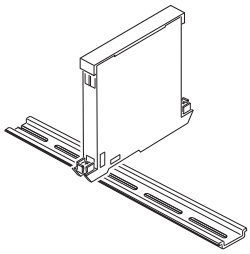
Devices for separating an intrinsically safe circuit from a non-intrinsically safe circuit

VIB 3.550 :	Limiting device for CLD-type accelerometers with intrinsic safety
0 2088 0009 :	Safety barrier for ICP-type accelerometers with intrinsic safety
0 2088 0010 :	Transmitter supply unit for VIBROTECTOR EX



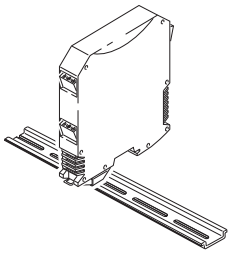
VIB 3.550

CE 0044



0 2088 0009

CE 0102



0 2088 0010

CE 0158

Application

These devices are used to separate an intrinsically safe circuit from a non-intrinsically safe circuit and to limit current and voltage in the intrinsically safe circuit. They are necessary for the operation of sensors in hazardous areas.

For the individual sensor types the following separating devices are provided:

VIB 3.550 for types VIB 6.1xx DEX
for types VIB 6.202 XD, VIB 6.203 XD
0 2088 0009 for type VIB 6.172 XICP
0 2088 0010 for VIBROTECTOR EX, VIB 5.73x EX

The transmitter supply unit 0 2088 0010 also powers the VIBROTECTOR transmitter with auxiliary power.

Notes regarding limiting device VIB 3.550

The details in the EC type examination certificate TÜV 02 ATEX 1849 must be considered.

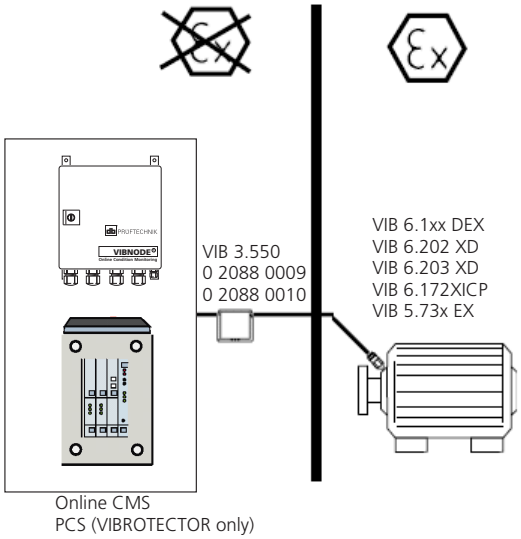
Additionally the european installation instructions (EN 60079-14 / EN 61241-14) and the installation notes for hazardous areas annexed in this catalog must be observed.

Note regarding items 0 2088 0009 / 0 2088 0010

Technical data are available on request.

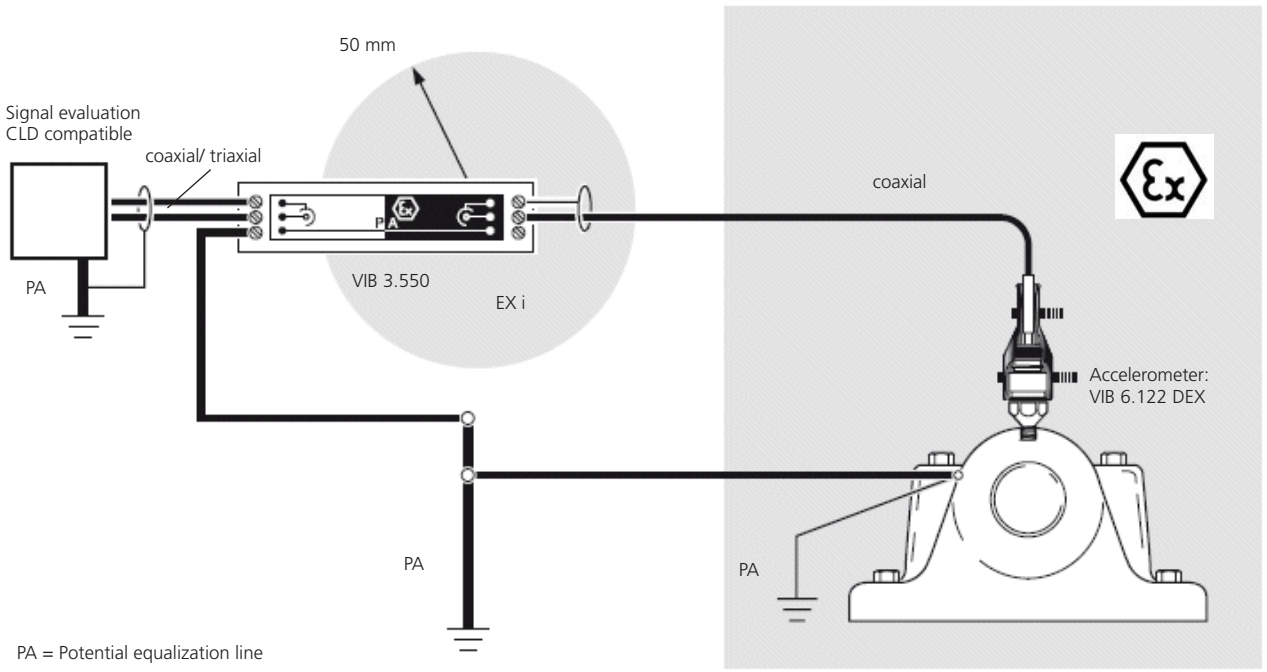
Technical data

PARAMETER		VIB 3.550
Electrical	Nominal supply voltage U_n	12V DC (±10%)
	Current drain	3.5mA DC + AC signal
	Signal	CLD (e.g. 1µA/ms^{-2})
	Accuracy, signal	sensor accuracy
	Non-intrinsically safe circuit (terminals IN+ IN- PA1)	U_m = 250 V AC
	Intrinsically safe circuit (terminals OUT+ OUT- PA2)	in type of protection Intrinsic Safety EEx ib IIC Maximum values: U_0 = 13 V I_0 = 18 mA P_0 = 240 mW C_0 = 300 nF L_0 = 1 mH
General	Temperature range , T_A	-10°C ... + 50°C
	Case material	PA6.6, green
	Environmental protection	IP 20
	Dimensions (HxWxD)	85 x 79 x 22.5 mm
EX	Marking	Ex II (2) G [EEx ib] IIC



Abbreviations
PCS: Process control system
CMS: Condition Monitoring System
ICP: Integrated Circuit Piezoelectric (sensor w/ voltage output)
CLD: Current Line Drive (sensor w/ current output)

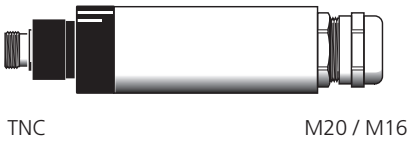
Connection example for limiting device VIB 3.550



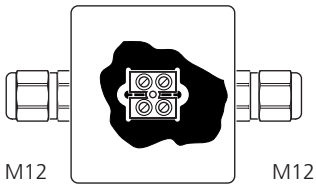
For more connection examples, see Appendix

Junction boxes for the extension of a sensor cable

VIB 6.770/9 :	Junction box (aluminium) for the extension of a sensor cable, coaxial - coaxial
VIB 6.770/13 :	Junction box (aluminium) for the extension of a sensor cable, coaxial - triaxial
VIB 6.770/9-S :	Junction box (stainless steel) for the extension of a sensor cable, coaxial - coaxial
VIB 6.770/13-S :	Junction box (stainless steel) for the extension of a sensor cable, coaxial - triaxial
VIB 6.776 :	Junction box (plastic) for the extension of a sensor cable, twisted-pair / 2-pin



VIB 6.770...



VIB 6.776

Application

These junction boxes are used to extend a sensor cable or as a cable interface for mobile data acquisition with a data collector. They are easy to mount and protect the cable terminals from dust and water.

Coaxial sensor cables can be extended with either a coaxial or triaxial cable.

The latter option is suitable for an environment subject to electromagnetic fields so that the signal is particularly well shielded from interference. The coaxial sensor cable is kept as short as possible and connected by a TNC plug to the junction box VIB 6.770/13. The TNC connector can be hermetically sealed with a dust cap and clamp rings. Most of the cable length consists of triaxial cable that is connected to the junction box via the threaded fitting.

* (only VIB 6.770...)

Note

The junction box VIB 6.770/13 is also suitable for coaxial cables with protective sheath (VIB 6.730).

Accessories

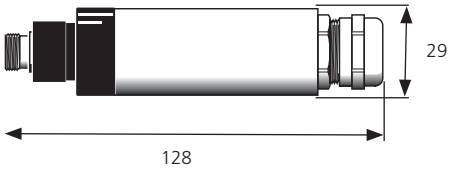
VIB 6.700 Dust caps for TNC plug, 10 pcs.
VIB 6.701 Dust caps for TNC plug, 10 pcs., oil proof
VIB 6.720 Small clamp rings for dust cap, 10 pcs.
VIB 6.721 Large clamp rings for dust cap, 10 pcs.
VIB 7.590 Metric fitting M16, 5 pcs.
VIB 7.592 Metric fitting M20. 2 pcs.
VIB 7.593 Metric fitting M12, 5 pcs.

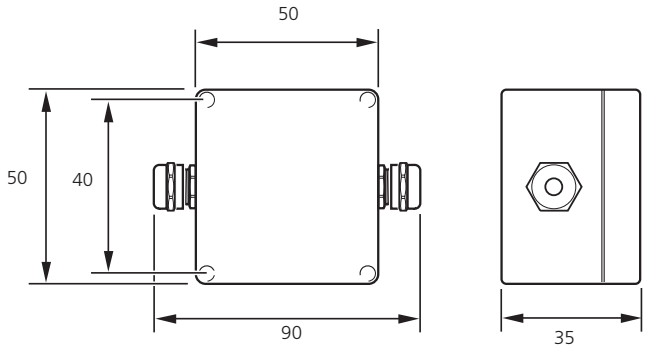
Technical data

PARAMETER		VIB 6.770/9	VIB 6.770/13	VIB 6.770/9-S	VIB 6.770/13-S	VIB 6.776
General	Case material	Aluminium		Stainless steel		ABS plastic
	In / Out connector	TNC / M16	TNC / M20	TNC / M16	TNC / M20	M12
	Env. protection	IP 65 (TNC plug connected)				

Dimensions

in mm





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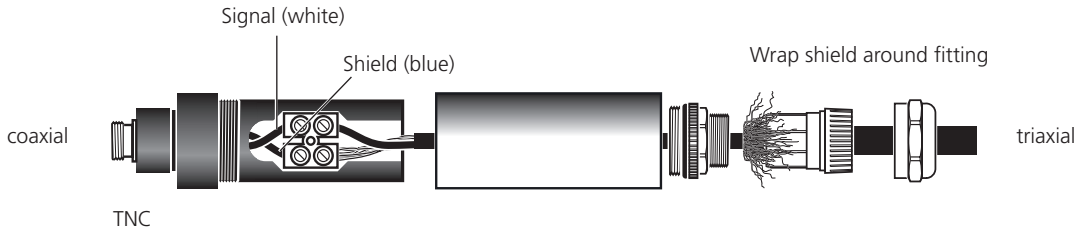
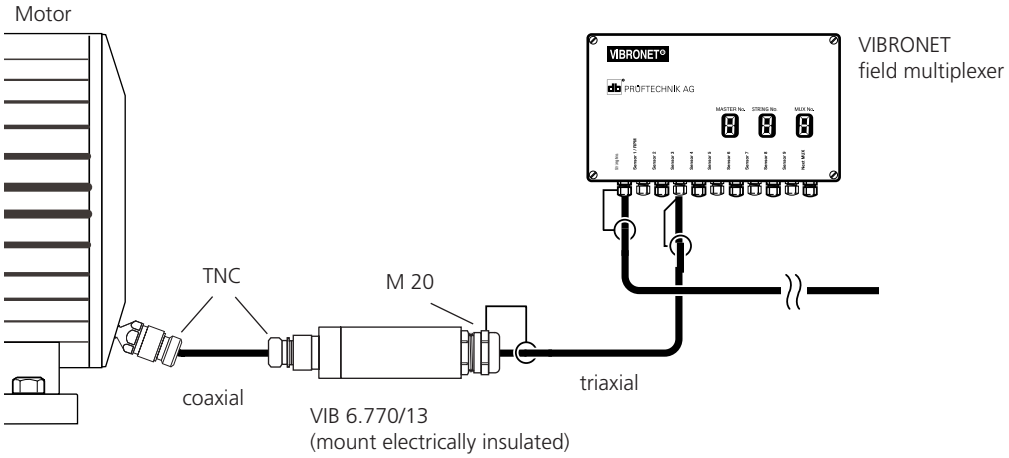
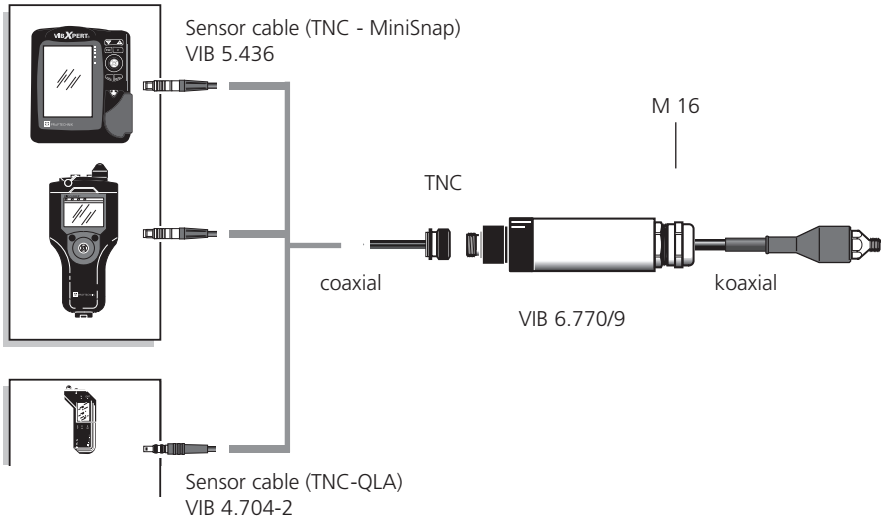
Connection diagram for VIB 6.770/13:
Extending a coaxial cable with a triaxial cable



Application example for VIB 6.770/13:
Online condition monitoring with VIBRONET Signalmaster



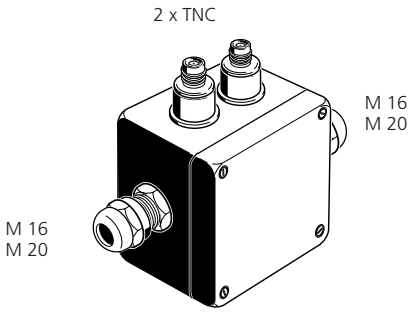
Application example for VIB 6.770/9:
Interface for mobile data collection with VIBXPERT, VIBSCANNER, VIBROTIP.

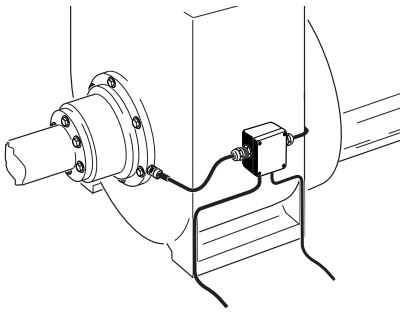


Junction boxes for the extension of two sensor cables

VIB 6.775/9 : Junction box for the extension of two sensor cables, coaxial - coaxial

VIB 6.775/13 : Junction box for the extension of two sensor cables, coaxial - triaxial





Application

This junction box is used to extend up to two sensor cables or as a cable interface for mobile data acquisition with a data collector. It is easy to mount and protects the cable terminals from dust and water.

Coaxial sensor cables can be extended with either a coaxial or triaxial cable.

The latter option is suitable for an environment subject to electromagnetic fields so that the signal is particularly well shielded from interference. The coaxial sensor cable is kept as short as possible and connected by a TNC plug to the junction box VIB 6.775/13. The TNC connector can be hermetically sealed with a dust cap and clamp rings. Most of the cable length consists of triaxial cable that is connected to the junction box via the threaded fitting.

Note

The junction box VIB 6.775/13 is also suitable for coaxial cables with protective sheath (VIB 6.730).

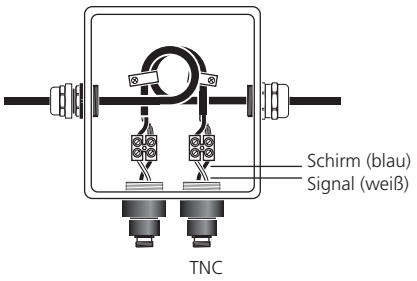
Accessories

VIB 6.700 Dust caps for TNC plug, 10 pcs.
VIB 6.701 Dust caps for TNC plug, 10 pcs., oil proof
VIB 6.720 Small clamp rings for dust cap, 10 pcs.
VIB 6.721 Large clamp rings for dust cap, 10 pcs.
VIB 7.590 Metric fitting M16, 5 pcs.
VIB 7.592 Metric fitting M20. 2 pcs.

Technical data

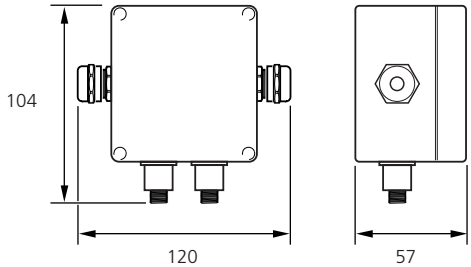
PARAMETER		VIB 6.775/9	VIB 6.775/13
General	Case material	Aluminium (die cast)	
	Input connectors	2x TNC	
	Output fittings	M16	M20
	Env. protection	IP 65 (TNC plug connected)	

Connection diagram

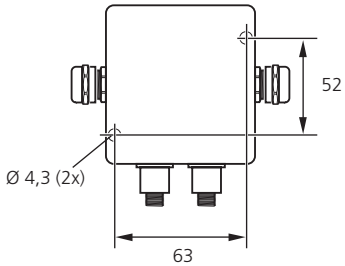


Dimensions

in mm



Mounting holes



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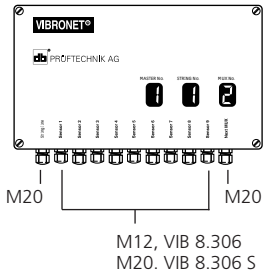
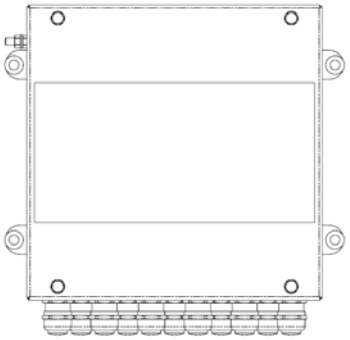
Field multiplexers for VIBRONET Signalmaster Online CMS

VIB 8.306 :	Field multiplexer with threaded fitting M12 for VIBRONET Signalmaster
VIB 8.306 S :	Field multiplexer with threaded fitting M20 for VIBRONET Signalmaster
VIB 8.306 V :	Field multiplexer with stainless steel housing for VIBRONET Signalmaster



VIB 8.306-V



M20

Application

These field multiplexers are used as channel switch selectors in the VIBRONET Signalmaster online CMS. The industrial-proofed field multiplexer for up to nine measuring channels reduces the number of signal lines to one single connection and, thus, saves installation costs. The channel is switched automatically by the online CMS. The stainless steel housing enables the multiplexer to be installed in chemically aggressive environments.

Modularity and Connections

Up to six multiplexers can be connected in series to form a single string line. Up to three string lines can be connected to the VIBRONET Signalmaster where a total of 108 measurement channels are allowed.

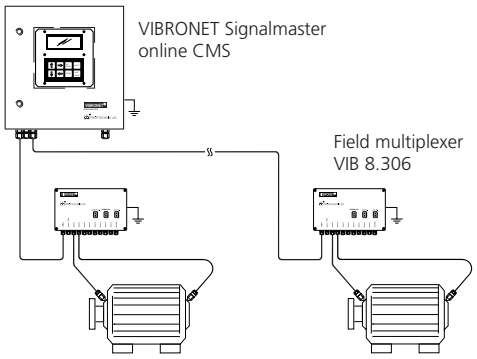
Sensor cables for vibration measurements are directly connected to the multiplexer board. For the connection of RPM, temperature, current and voltage sensors special multiplexer modules are required.

Accessories

VIB 7.590 Metric fitting M16, 5x
VIB 7.592 Metric fitting M20, 2x
VIB 8.310 Temperature modul
VIB 8.312 Process parameters module (current / voltage)
VIB 8.313 RPM module
VIB 8.361 LED labels 0-9

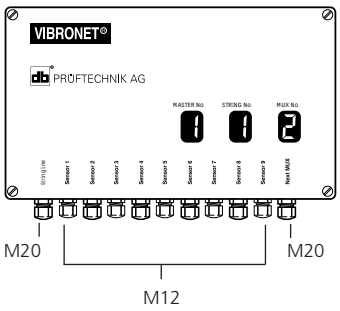
Technical data

PARAMETER		VIB 8.306	VIB 8.306 S	VIB 8.306 V
General	Housing material	Cast aluminum housing, powder coated		Stainless steel (VA)
	Inputs / Outputs	9 sensor inputs, 1 string input, 1 string output		
	Env. protection	IP 65		IP 66
	Temperature range	-40C°...+80°C		
	Clamping range M12	3.0 ... 6.5 mm		--
	-, M20	7.0 ... 12.0 mm		
	Dimensions LxWxD	224 x 120 x 98 mm		253 x 253 x 120 mm
	Weight	approx. 3 kg		approx. 5 kg
Electrical	Power supply	Approx. 10V from VIBRONET Signalmaster 'string' output		
	Current consumption	In µA range		
	Interference protect.	Inputs and outputs protected by suppressor diodes		



Field multiplexers with intrinsic safety for VIBRONET Signalmaster Online CMS

VIB 8.306 EX : Field multiplexer for VIBRONET Signalmaster, aluminium housing, intrinsically safe, 224x120 mm



CE 0044

Application

These field multiplexers can be installed in hazardous areas and are used as channel switch selectors in the VIBRONET Signalmaster online CMS. The industrial-proofed field multiplexer for up to nine measuring channels reduces the number of signal lines to one single connection and, thus, saves installation costs. The channel is switched automatically by the online CMS.

Modularity and connections

The number of multiplexers in a string line is limited by the interface conditions for installation in hazardous areas and by the OMNITREND software. From the software side a maximum of 6 multiplexers can be connected to a single string line. All sensor cables are connected via appropriate connection modules in the multiplexer.

Notes on intrinsic safety

The details in the examination certificate of the VIBRONET field multiplexer (type: VIB ..- 8.3 EX) TÜV 02 ATEX 1962 must be considered.

Additionally the following documents must be observed:

- European installation instructions (EN 60079-14:1997, EN 61241-14:2004)
- Installation notes for hazardous areas in this catalog.
- VIBRONET installation instructions VIB 9.520.G

Accessories

VIB 7.590	Metric fitting M16, 5x
VIB 7.592	Metric fitting M20, 2x
VIB 8.310 EX	Temperature module, intr. safe
VIB 8.313 EX	RPM module, intr. safe
VIB 8.314 EX	Vibration module, intr. safe
VIB 3.550	Limiting device for Current LineDrive accelerometers with intrinsic safety
VIB 8.361	LED labels 0-9

Technical data

PARAMETER		VIB 8.306 EX
General	Housing material	Cast aluminum housing, powder coated
	Inputs / Outputs	9 sensor inputs, 1 string input, 1 string output
	Env. protection	IP 65
	Temperature range	-20C° ...+ 70°C
	Clamping range M12	3.0 ... 6.5 mm
	-, M20	7.0 ... 12.0 mm
	Dimensions LxWxD	224 x 120 x 98 mm
	Weight	approx. 3 kg
Electrical	Power supply	Approx. 10 V from VIBRONET Signalmaster 'string' output
	Current consumption	In µA range
	Interference protect.	Inputs and outputs protected by suppressor diodes
EX	Marking	Ex II 2 G EEx ib IIC T4

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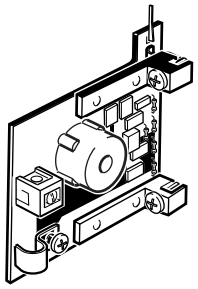
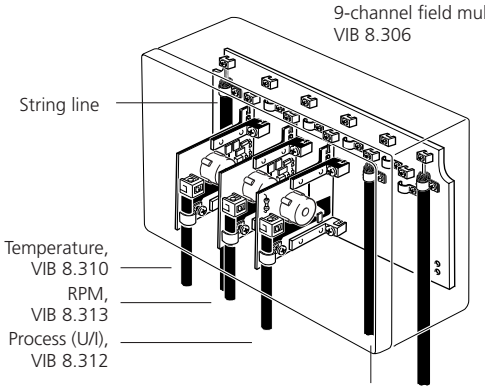
Connection modules for VIBRONET field multiplexers

VIB 8.310 :	Temperature module for VIBRONET field multiplexer
VIB 8.312 :	Process parameters module (current/ voltage) for VIBRONET field multiplexer
VIB 8.313 :	RPM module for VIBRONET field multiplexer
VIB 8.310 EX :	Temperature module for VIBRONET field multiplexer, intrinsically safe
VIB 8.313 EX :	RPM module for VIBRONET field multiplexer, intrinsically safe
VIB 8.314 EX :	Vibration module for VIBRONET field multiplexer, intrinsically safe



VIB 8.310



CE 0044

Application

These modules are required for the connection of the appropriate sensor cable in the VIBRONET field multiplexer.

Description

The VIB 8.310 module converts the resistance value of the Pt100 temperature probe (VIB 6.610) into a digital current signal.

The VIB 8.312 module allows connection to measurement instruments with a standard current or standard voltage output (4-20 mA, 0-10V). This allows monitoring of process parameters, e.g. pressure, flow rate, etc..

The VIB 8.313 module is used to connect a RPM sensor to the multiplexer.

CLD-tpye accelerometers are connected directly to the multiplexer board. In hazardous areas the connection module VIB 8.314 EX is required for this type of sensor.

Notes on intrinsic safety

The details in the examination certificate of the VIBRONET field multiplexer (type: VIB ..- 8.3 EX) TÜV 02 ATEX 1962 must be considered.

Additionally the following documents must be observed:

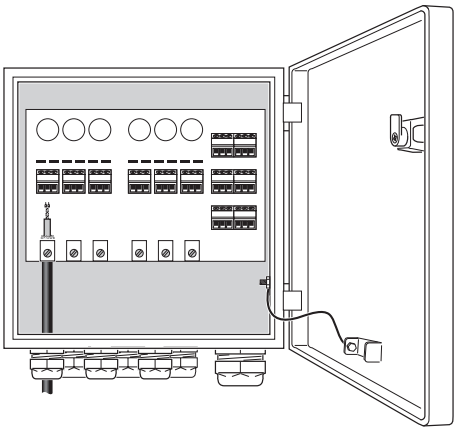
- European installation instructions (EN 60079-14:1997, EN 61241-14:2004)
- Installation notes for hazardous areas annexed in the sensor catalog LIT 01.700.EN.
- VIBRONET installation instructions VIB 9.520.G

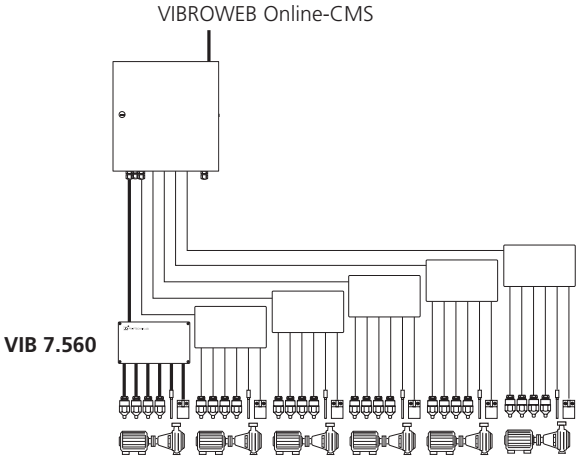
Abbreviation
CLD: Current Line Drive

Technical data

PARAMETER		VIB 8.310	VIB 8.312	VIB 8.313	VIB 8.314 EX
Electrical	Input	Pt100 temperature probe	Current / Voltage	Inductive proximity sensor	CLD-type accelerometer
	Output	Digitalized current signal			
	Sensitivity	0,385 Ohm/°C	--	2 mA	--
	Current output to sensor	< 2 mA	--	< 4 mA	--
	Voltage output to sensor	< 1 V	< 2.2 V (at connector, current module) 10 kOhm (Input resistance, voltage module)	< 8 V	--
	Balancing resistor	--			100 Ohm
General	Temperature range, operation	-20C°...+80°C			-20C°...+70°C
	Dimensions	46 x 50 x 2 mm			

VIB 7.560 : VIBROWEB connection box





Application

Up to 6 sensor lines are connected in the VIBROWEB connection box and fed to the VIBROWEB switching cabinet via a multicore shielded cable. If the connection box is mounted near the measurement locations, installation costs can be reduced by avoiding long cables.

If electromagnetic interference is present within the vicinity of the sensor lines, its influence on the measured signals can be suppressed by chokes. All components and connection terminals are provided on a board in an industrial housing. The glands for the sensor cables and the multicore electrical cable are already installed.

Up to:
- six sensors with 2-line or 3-line connection, or
- three sensors with 4-line connection

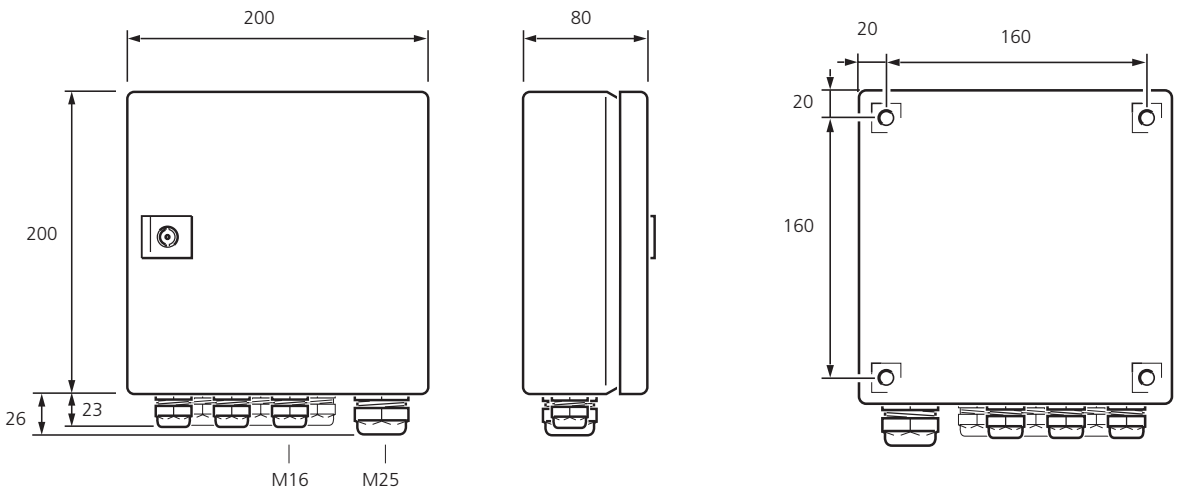
can be connected in the VIBROWEB connection box.

Accessories

VIB 7.590	Metric fitting M16, 5 pcs.
VIB 7.591	Metric fitting M25, 2 pcs.

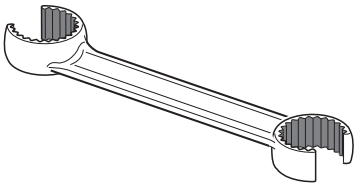
Dimensions and drilling template

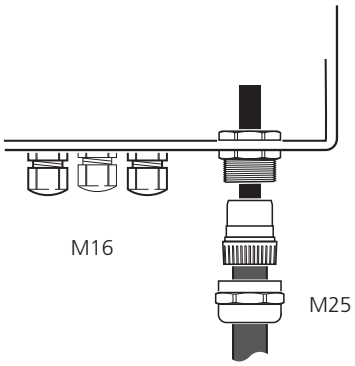
Dimensions in mm



Installation tools for metric cable fittings

VIB 7.580 :	Open ring spanner, 14x17
VIB 7.581 :	Open ring spanner, 19x22
VIB 7.582 :	Open ring spanner, 24x27
VIB 7.583 :	Open ring spanner, 24x25





Application

Open ring spanners are used for the installation of metric cable fittings.

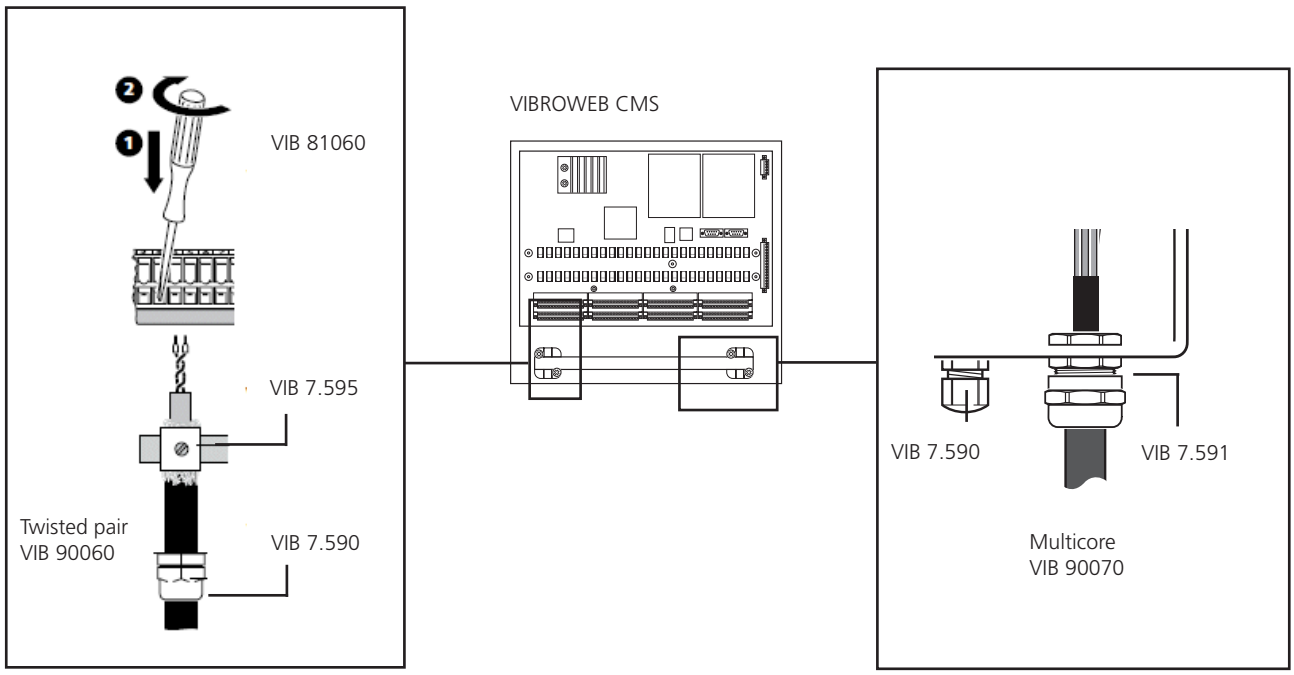
Note

Recommended key sizes for metric cable fittings:

Fitting	Key size
M12	17
M16	22
M20	25
M25	27

Metric cable fittings and shield clamps

VIB 7.590 :	Metric cable fitting M 16, 5 pieces
VIB 7.591 :	Metric cable fitting M 25, 2 pieces
VIB 7.592 :	Metric cable fitting M 20, 5 pieces
VIB 7.593 :	Metric cable fitting M 12, 5 pieces
VIB 7.595 :	Shield clamp SK8, 5 pieces
VIB 81060 :	Screw driver 2.5 x 35



Application

For the installation of the sensor cable in the CMS switching cabinet, metric threaded fittings in different sizes are available:

M16 is suitable for standard coaxial cable (VIB 90008), standard twisted-pair cable (VIB 90061) and cables with similar dimensions.

The multicore twisted-pair cable (VIB 90070) fits in the M25 threaded fitting.

The M12 threaded fitting is suitable for ethernet cables and control lines.

Abbreviation
CMS: Condition Monitoring system

The shield clamping clips SK8 are mounted on the shield rails in the CMS switching cabinet and are intended for the shield of the twisted-pair cable, the inner shields of the multicore cable and other potential-free shields.

Accessories

VIB 7.580	Open ring spanner, 14x17
VIB 7.581	Open ring spanner, 19x22
VIB 7.582	Open ring spanner, 24x27
VIB 7.583	Open ring spanner, 24x25

Plugs and sockets for coaxial cable RG 58

VIB 91001 : TNC plug to threaded fitting, angled, oilproof
VIB 91002 : TNC plug to TNC socket, angled
VIB 91009 : BNC plug to crimp contact, angled
VIB 93022 : TNC plug to crimp contact, straight
VIB 93031 : TNC plug to threaded fitting, straight
VIB 93033 : TNC socket to TNC socket, straight
VIB 93047 : TNC socket to crimp contact, straight
VIB 93055 : TNC plug to BNC plug, straight
VIB 93060 : BNC plug to crimp contact, straight
VIB 93062 : TNC socket to BNC plug, straight
VIB 93067 : TNC plug to BNC socket, straight
VIB 93077 : TNC plug to crimp contact, angled

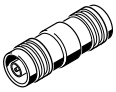

VIB 91001

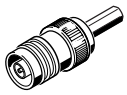

VIB 91002


VIB 91009

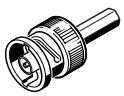

VIB 93022


VIB 93031

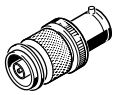

VIB 93033


VIB 93047


VIB 93055


VIB 93060


VIB 93062


VIB 93067


VIB 93077

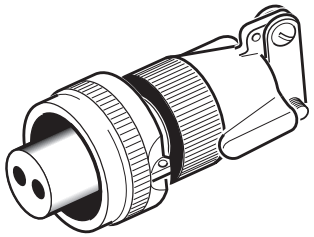
Application
These plugs and sockets in various designs and shapes are used for connecting sensor cables and for the assembly of coaxial cables (RG 58).

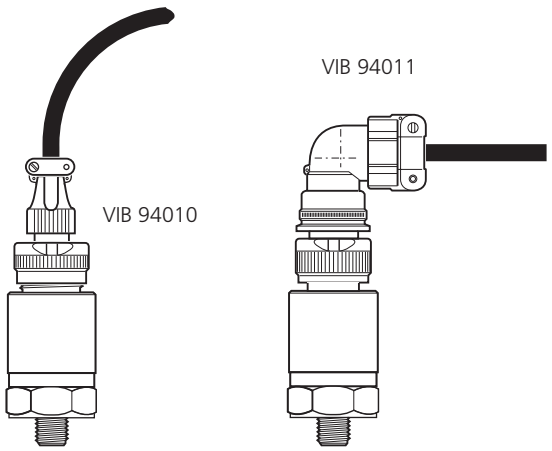
Accessories
VIB 81026 Crimping tool for coaxial cable
VIB 81052 Cutting tool for coaxial cable

Plug-in connectors for two-wire, shielded sensor cables

VIB 94010 : Plug-in connector, 2-pin, straight

VIB 94011 : Plug-in connector, 2-pin, angled





Application

These connectors are used for the assembly of two-wire sensor cables which are suitable for the following sensors:

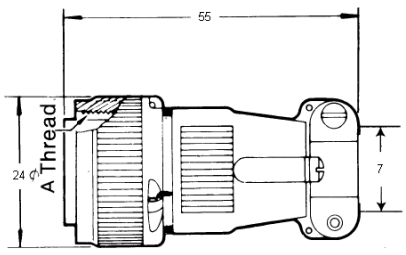
VIB 6.195	CLD-type accelerometer
VIB 6.172	ICP-type accelerometer
VIB 6.172XICP	ICP-type accelerometer, intrinsically safe (only with straight connector, VIB 94010)
VIB 5.73..	VIBROTECTOR vibration transmitter
VIB 5.73..EX	VIBROTECTOR vibration transmitter, intrinsically safe

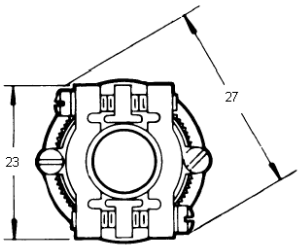
Technical data

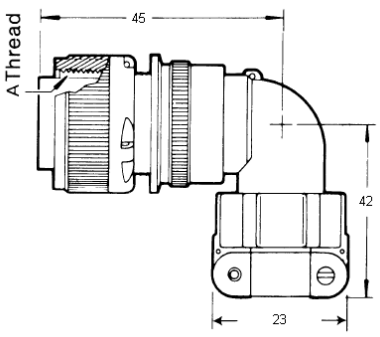
PARAMETER		VIB 94010	VIB 94011
General	Material	Aluminum alloy	
	Surface	Zinc Nickel (A 240); RoHS compliant Protection against salt spray (500h) and shielding acc. to VG95234	
	Clamping range	< 7 mm	
	Specification	MIL-C-5015	
	Special feature	Cable clamp and sleeve	

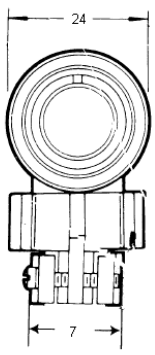
Dimensions

in mm









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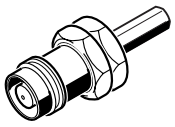
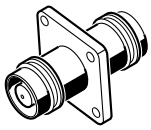
Bulkhead connectors for coaxial cable RG 58

VIB 91000 :	Chassis connector, TNC socket to crimp contact
VIB 93035 :	Dust cap for TNC socket
VIB 93036 F :	Bulkhead connector w/ fastening flange, TNC socket to TNC socket
VIB 93036 S :	Bulkhead connector single hole screw version, TNC socket to TNC socket
VIB 93056 :	Bulkhead connector w/ fastening flange, BNC socket to TNC socket
VIB 93061 :	Dust cap for BNC socket
VIB 93090 :	Chassis connector, BNC socket to crimp contact

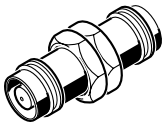


VIB 91000

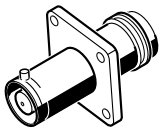
VIB 93035



VIB 93036 F

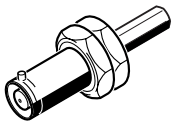


VIB 93036 S



VIB 93056

VIB 93061



VIB 93090

Application

Bulkhead connectors are used if sensor cables have to be fed through protective covers, housing covers or similar.

Notes

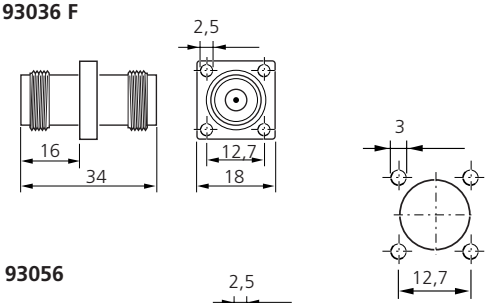
Suitable insulating washers are required to electrically insulate the connectors.

The dust caps are attached to a metal cord. To electrically insulate the connector, the dust caps must only come into contact with insulated components.

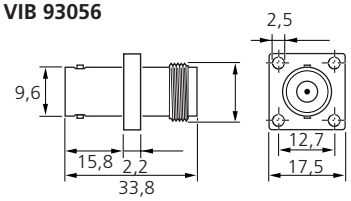
Dimensions and drilling template

in mm

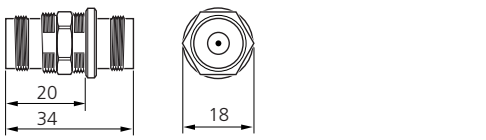
VIB 93036 F



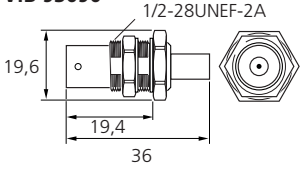
VIB 93056



VIB 93036 S

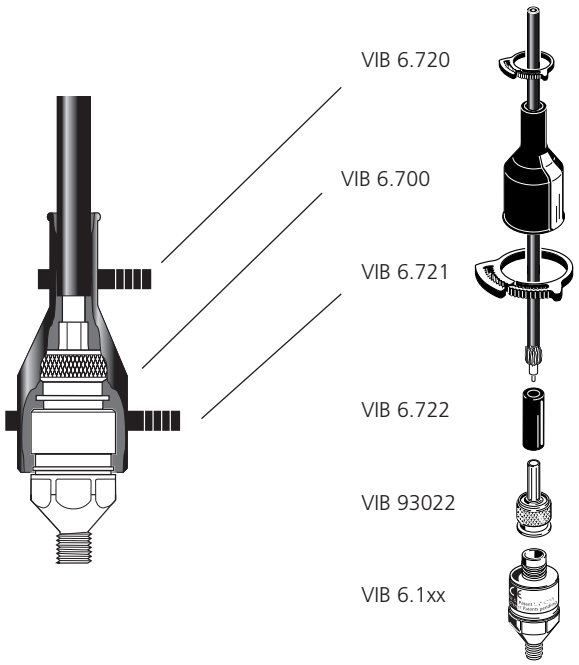


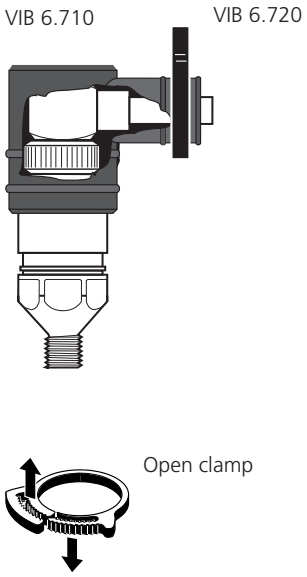
VIB 91000
VIB 93090



Dust caps for industrial accelerometers (type VIB 6.1xx)

VIB 6.700 :	Dust cap for industrial accelerometer (type VIB 6.1xx), straight, 10 pcs.
VIB 6.701 :	Dust cap for industrial accelerometer (type VIB 6.1xx), straight, oil-resistant, 10 pcs.
VIB 6.710 :	Dust cap for industrial accelerometer (type VIB 6.1xx), angled, 10 pcs.
VIB 6.711 :	Dust cap for industrial accelerometer (type VIB 6.1xx), angled, oil-resistant, 10 pcs.
VIB 6.720 :	Clamp for dust cap, cable end, 10 pcs.
VIB 6.721 :	Clamp for dust cap, sensor end, 10 pcs.
VIB 6.722 :	Dust cap sleeve, 10 pcs.





Function

The dust cap with the appropriate clamp seal and relieve stress on the connection between the accelerometer and cable. The clamp can be mounted and undone without the need for any tools.

Notes

In hazardous areas only the straight caps* (VIB 6.700 / VIB 6.701) may be used, because they can be sealed according to the requirements (IP 67).

The angled caps (6.710 VIB / VIB 6.711) must not be used in hazardous areas, as they can be sealed only with the cable-ended clamp (IP 65).

Only silicone-free dust caps may be used in paint shops.

Technical data

PARAMETER		VIB 6.700	VIB 6.710	VIB 6.701	VIB 6.711	VIB 6.720	VIB 6.721	VIB 6.722
General	Material	Silicone (Silopren HV)		Vitone (FKM polymer, P-60 120 black)		Nylon 66, thermally stabilized		Acrylonitrile-Butadiene-rubber (NBR)
	Resistance	Ozone, weathering, ageing, UV emission, hot water, steam (up to 130°C / 266°F), aliphatic hydrocarbons (mineral oils)		Ozone, weathering, ageing aliphatic , aromatic and chlorinated hydrocarbons (e.g. mineral oils,greases, fuels and mixtures), anorganic acids, chemicals, silicone oil or greases		Industrial solvents, fuels, oils, greases, weathering		silikone free, oil-resistant
	Temperature range	-55 °C ... + 180 °C		-30 °C ... + 200 °C		-40°C ... +120°C		---
	Env. protection	IP 67**	IP 65	IP 67**	IP 65	---		---
	Size range, clamp	---				12.2...14.8 mm	20.5...23 mm	---

* w/ dust cap sleeve, protective sheath or triaxial cable (if applicable, see next page)
** w/ clamps VIB 6.720 & VIB 6.721 and dust cap sleeve VIB 6.722

Installation examples

Standard coaxial cable RG 58
VIB 90008-x

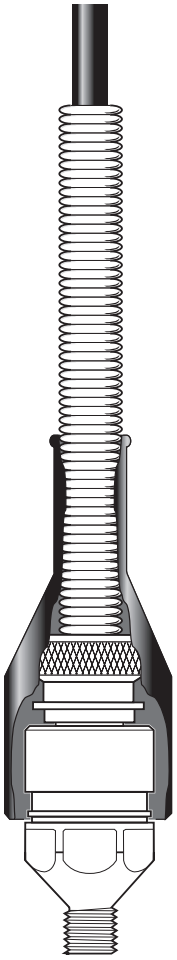
Dust cap sleeve
VIB 6.722

Dust cap
VIB 6.700

Standard coaxial cable RG 58
VIB 90008-x

Protective sheath
VIB 6.730

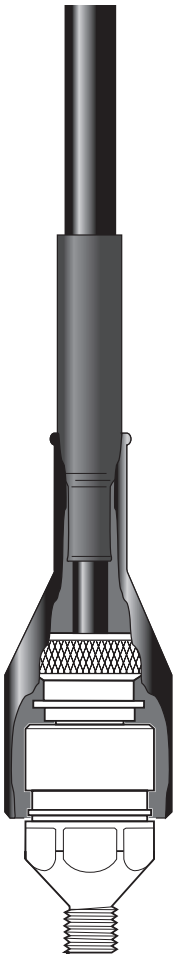
Dust cap
VIB 6.700



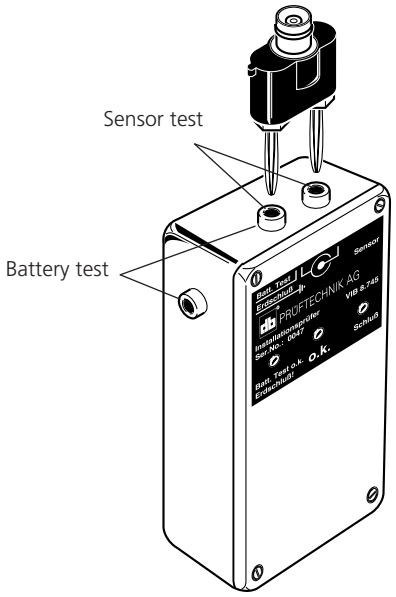
Standard triaxial cable
VIB 90080-x

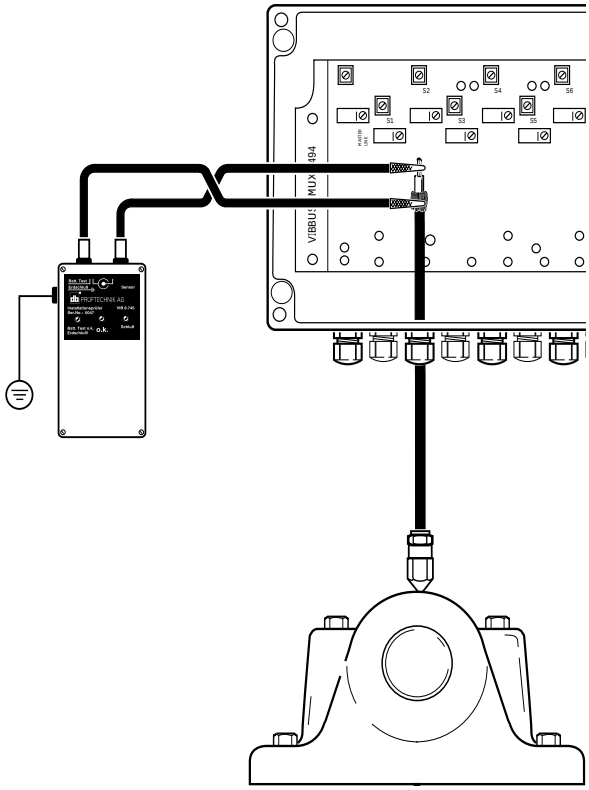
Heat-shrinkable
sleeve

Dust cap
VIB 6.700



VIB 8.745 : Installation checker





Application

The VIB 8.745 installation checker lets you ensure that remotely mounted accelerometers are properly connected. The unit features three LED's which light up according to the status of the connection:

Green LED = Installation is correct
Red LED = Short circuit
Yellow LED = Ground loop

Additionally, battery test terminals allow battery voltage checking: if voltage is less than 5V, the yellow LED lights up.

If the battery voltage is sufficient, yet none of the LED's lights up, then the connection to the sensor has been broken.

How to check the installation:

Attach the leads from the accelerometer to be checked via the QLA jacks on the top of the installation checker, if necessary using the VIB 4.705 QLA-BNC plug adapter.

Alternatively, the sensor leads may be connected to the jacks on the top of the unit via BNC or TNC adapter (not included), as shown above, or using ordinary banana plugs.

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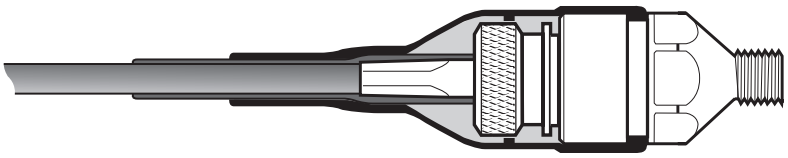
Sealing of the cable connection for use in liquids / in hazardous areas (IP68)

VIB 6.760 : IP 68 option for industrial accelerometer (type VIB 6.1xx)

VIB 6.761 : IP 68 option for industrial accelerometer (type VIB 6.1xx), short version



Option

Coaxial cable, oil-resistant
VIB 90093-L*

*L= cable length in meters

Shrink-fit part,
incl. TNC plug
VIB 6.760
VIB 6.761

Industrial accelerometer
VIB 6.125-RIP
VIB 6.129-IP

Function

The IP 68 option is used to hermetically seal the connection between sensor and cable and relieve strain.

Application

Vibration measurements in gearboxes and submerged pumps with the industrial accelerometers for high ambient temperatures (type VIB 6.125 RIP and VIB 6.129 IP). The IP 68 option is also suitable for applications in hazardous areas (only with accelerometers type VIB 6.125 IDEX or VIB 6.129 IDEX respectively).

Order information

The shrink-fit part, the cable and the accelerometer are factory-built. Please indicate accelerometer type, option IP68 and cable with length when ordering.

Example: VIB 6.125 RIP / VIB 6.760 / VIB 90093-10
= industrial accelerometer with M8 thread, shrink-fit part IP68 and 10-meter coaxial cable.

Test certificate

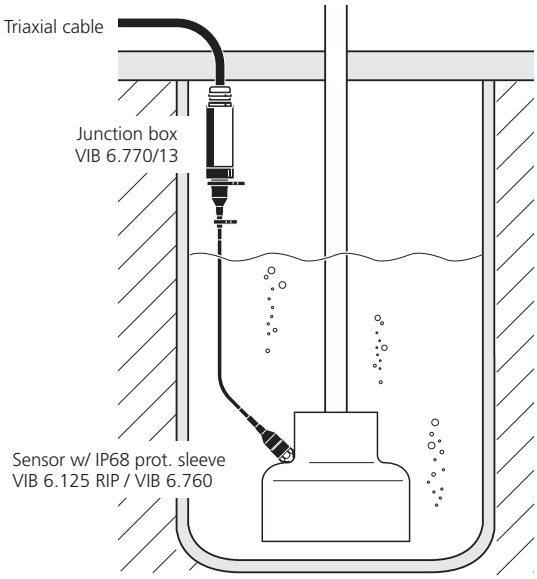
The test certificate for the accelerometer VIB 6.125-RIP can be ordered separately (VIB 2.550).

Technical data

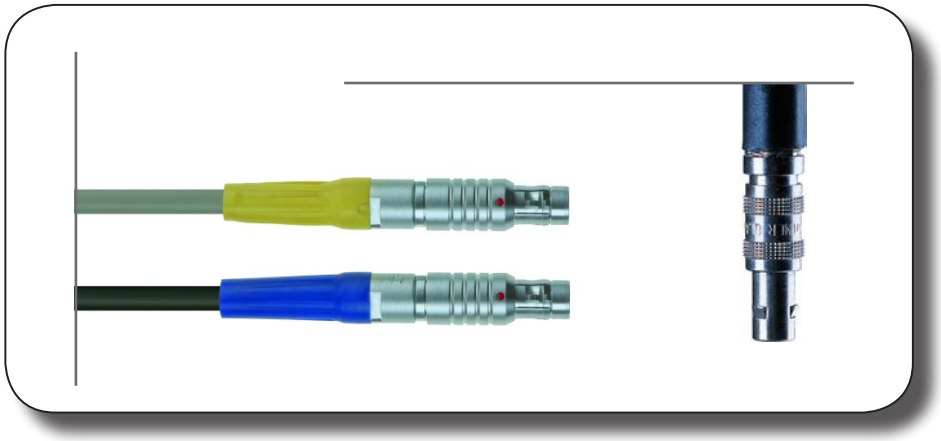
PARAMETER		VIB 6.760	VIB 6.761
General	Env. protection	IP 68 (dust and waterproofed)	
	Admissible sensor	VIB 6.125-RIP, VIB 6.129-IP VIB 6.125-IDEX, VIB 6.129-IDEX	
	Temperature range	defined by sensor	
	Max. depth / pressure	8 m in water / zero pressure in oil	
	Resistance	Aircraft fuel F40, lubricating oil O-156, hydraulic fluid H515, diesel fuel F54, motor fuel F46, water, seawater	
	Mounting height	> 140 mm	> 120 mm

Application example:

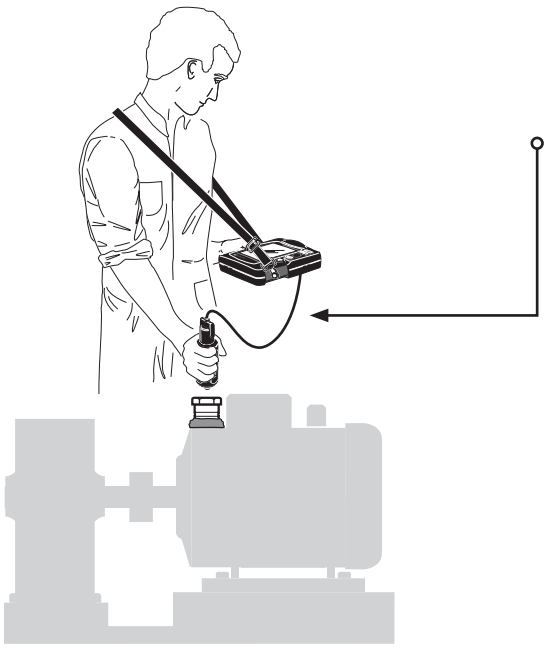
Vibration monitoring on a submerged pump



Chapter 5
Sensor cables and connection adapters for mobile data collectors

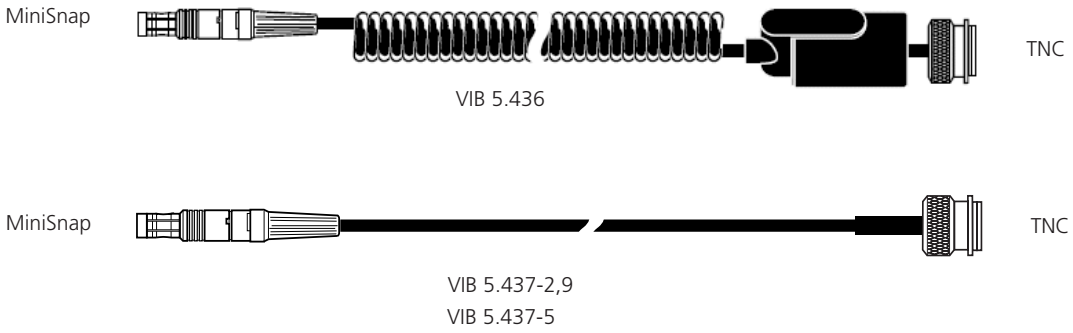


Contents: Sensor cables and connection adapters for mobile data collectors



Connection cables for current linedrive accelerometers (VIBSCANNER / VIBXPERT)

VIB 5.436 :	Spiral connection cable for current linedrive accelerometer (VIBSCANNER / VIBXPERT)
VIB 5.437-2,9 :	Straight connection cable for current linedrive accelerometer, 2.9 meters (VIBSCANNER / VIBXPERT)
VIB 5.437-5 :	Straight connection cable for current linedrive accelerometer, 5 meters (VIBSCANNER / VIBXPERT)



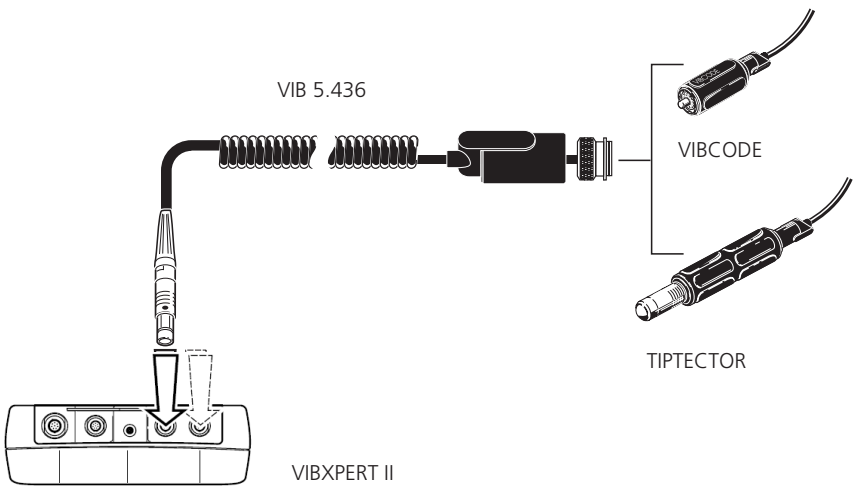
Application
These cables are used to connect mobile industrial accelerometers with current linedrive output to the following PRÜFTECHNIK data collectors:

- VIBXPERT II
- VIBXPERT I
- VIBXPERT EX
- VIBSCANNER
- VIBSCANNER EX

Cable lengths

VIB 5.436	0.7 ... 1.8 m
VIB 5.437-2,9	2.9 m
VIB 5.437-5	5 m

Connection example
VIBCODE / TIPTECTOR connected to VIBXPERT II



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VIB 5.444-5 : Universal cable extension for analog measurement channel, 5 meters

Application

With this cable, the analog signal path can be extended by up to five meters.

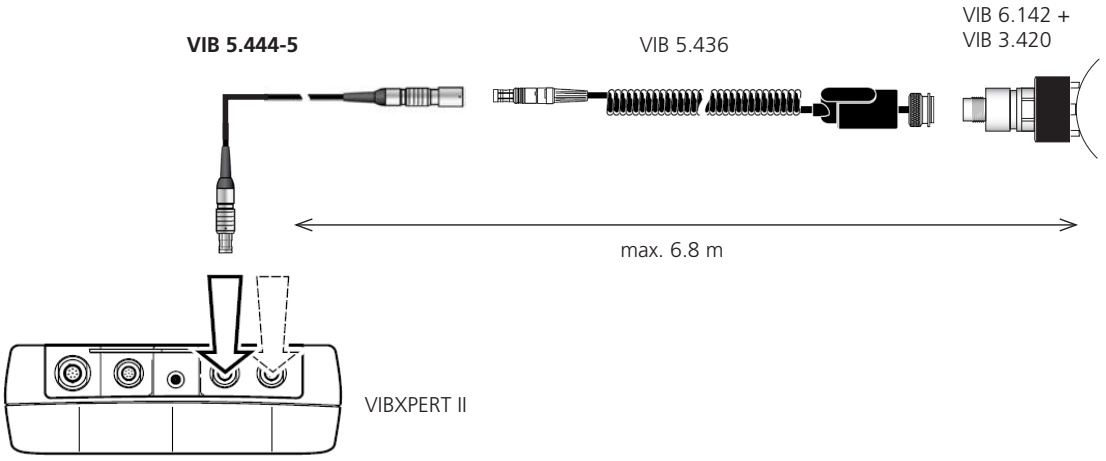
Extendable sensor cables:

VIB 5.436	LineDrive spiral cable
VIB 5.437-2,9	LineDrive cable, straight, 2.9m
VIB 5.437-5	LineDrive cable, straight, 5m
VIB 5.438-0,5	ICP cable, BNC connector
VIB 5.422	ICP cable, MIL connector
VIB 5.433	Cable for extra-low voltage
VIB 5.433	Cable for extra-low voltage, VIBXPERT EX
VIB 5.434	Cable for extra-low current
VIB 5.342	Cable for VST 24V adapter

Note

For cable lengths greater than 2.9 meters, the EMC immunity of the signal path can be adversely affected.

Connection example



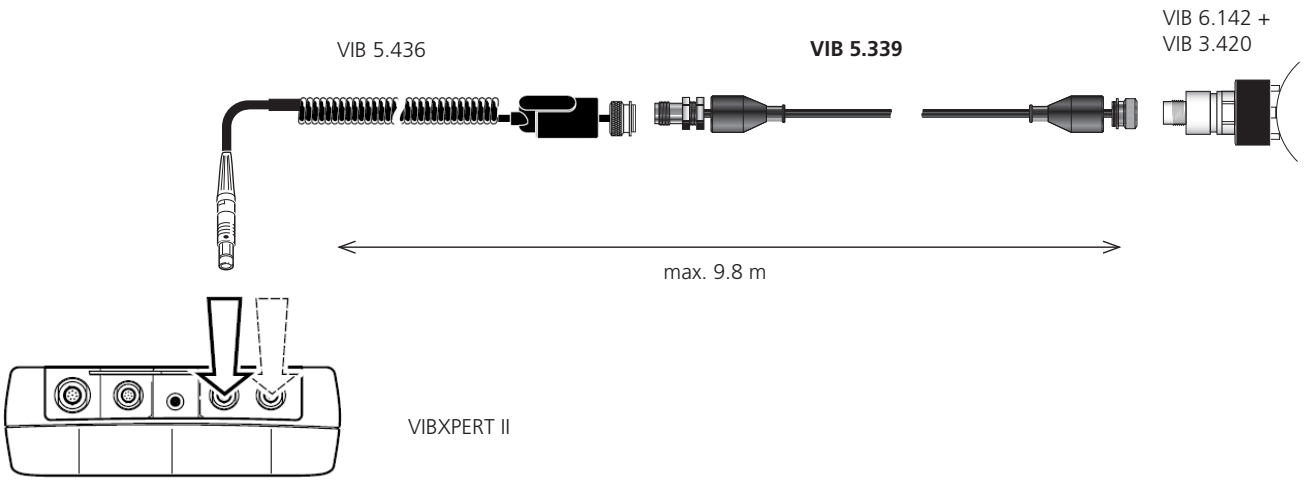
VIB 5.339: Cable extension for Current Linedrive accelerometer, 8 meters

Application
With this cable, the Current LineDrive sensor cables can be extended by up to eight meters.

Extendable sensor cables:
VIB 5.436 LineDrive spiral cable
VIB 5.437-2,9 LineDrive cable, straight, 2.9m
VIB 5.437-5 LineDrive cable, straight, 5m

Note
For cable lengths greater than 2.9 meters, the EMC immunity of the signal path can be adversely affected.

Connection example



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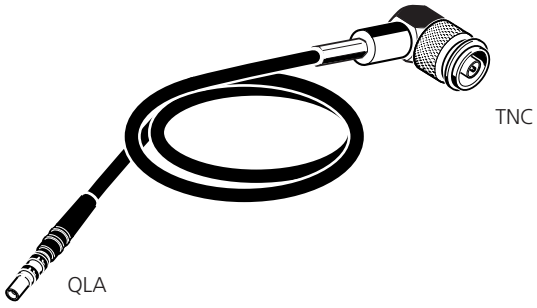
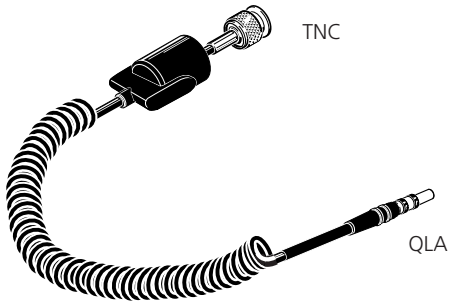
Connection cables for current linedrive (CLD) accelerometers (VIBROTIP)

VIB 4.701-2 :	Straight connection cable for CLD-type accelerometer, BNC angled plug, 2 meters (VIBROTIP)
VIB 4.701-5 :	Straight connection cable for CLD-type accelerometer, BNC angled plug, 5 meters (VIBROTIP)
VIB 4.702-2 :	Straight connection cable for CLD-type accelerometer, Microdot angled plug, 2 meters (VIBROTIP)
VIB 4.702-5 :	Straight connection cable for CLD-type accelerometer, Microdot angled plug, 5 meters (VIBROTIP)
VIB 4.704-2 :	Straight connection cable for CLD-type accelerometer, TNC angled plug, 2 meters (VIBROTIP)
VIB 4.704-5 :	Straight connection cable for CLD-type accelerometer, TNC angled plug, 5 meters (VIBROTIP)
VIB 321926-2 :	Spiral connection cable for CLD-type accelerometer, TNC plug, 2 meters (VIBROTIP)



VIB 4.704-2



VIB 321926-2

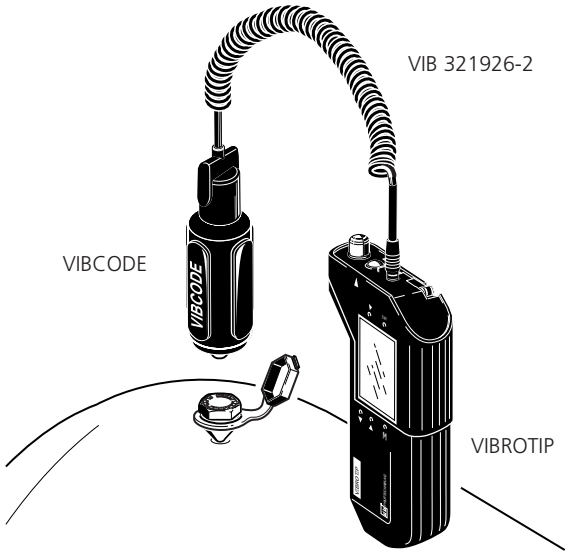
1 2 3 4 5 6 A

Application
Standard sensor cable for connecting mobile CLD-type accelerometers to the VIBROTIP data collector.

Cable length
VIB 4.70x-2 /-5 2 m / 5 m
VIB 321926-2 0.4 ... 2.0 m

Accessories
VIB 8.617 QLA angled plug for VIBROTIP

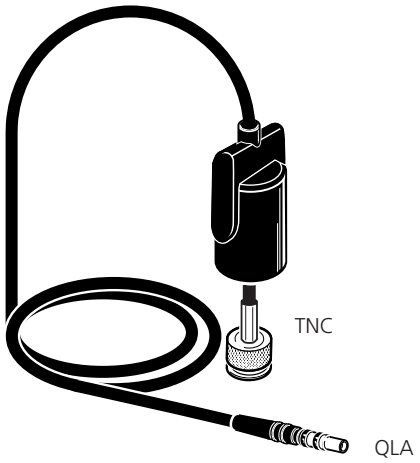
Connection example
VIBCODE to VIBROTIP

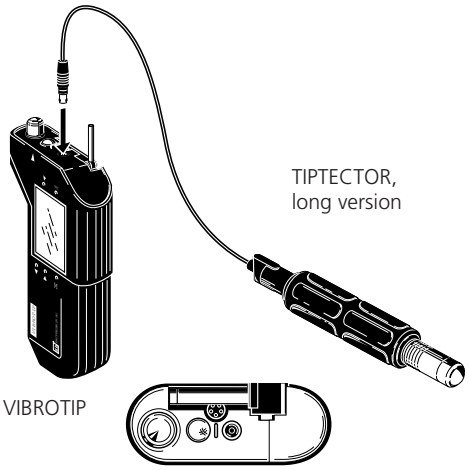


TIPTECTOR cables (VIBROTIP)

VIB 8.618-1,5 : TIPTECTOR cable, straight, 1.5 meters (VIBROTIP)

VIB 8.618-5 : TIPTECTOR cable, straight, 5 meters (VIBROTIP)

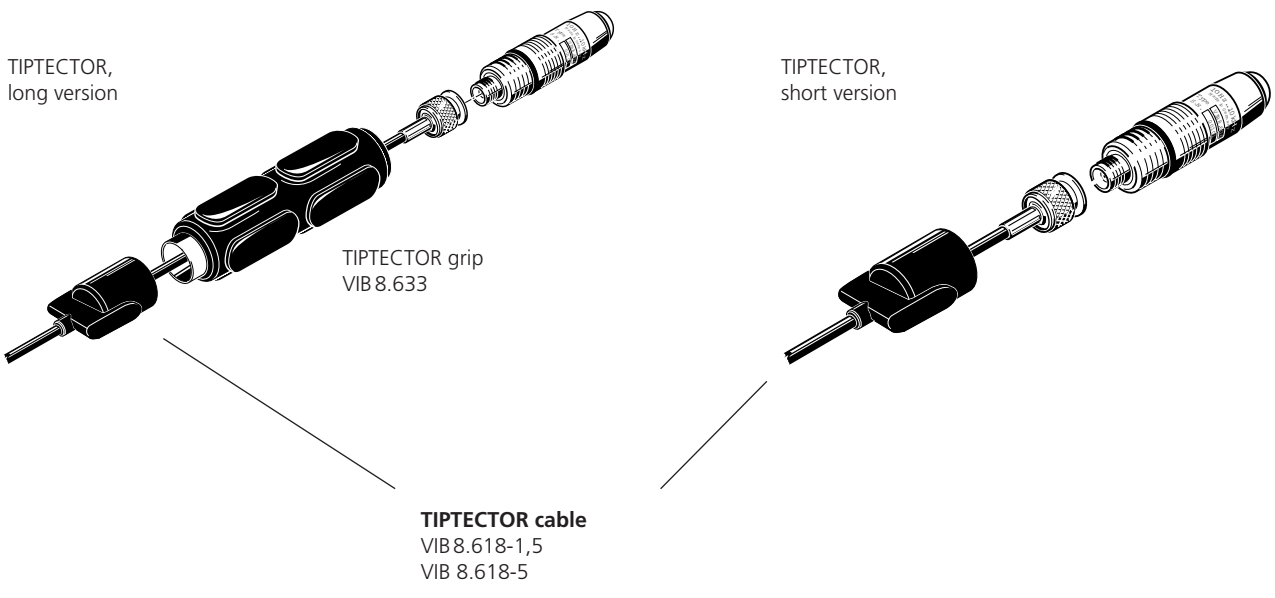




Application
Spare connection cable for the TIPTECTOR probe.

Note
To disconnect the cable, first pull off the cap, and, with the long version, unscrew the handle. Then unscrew the TNC connector.

Connection example



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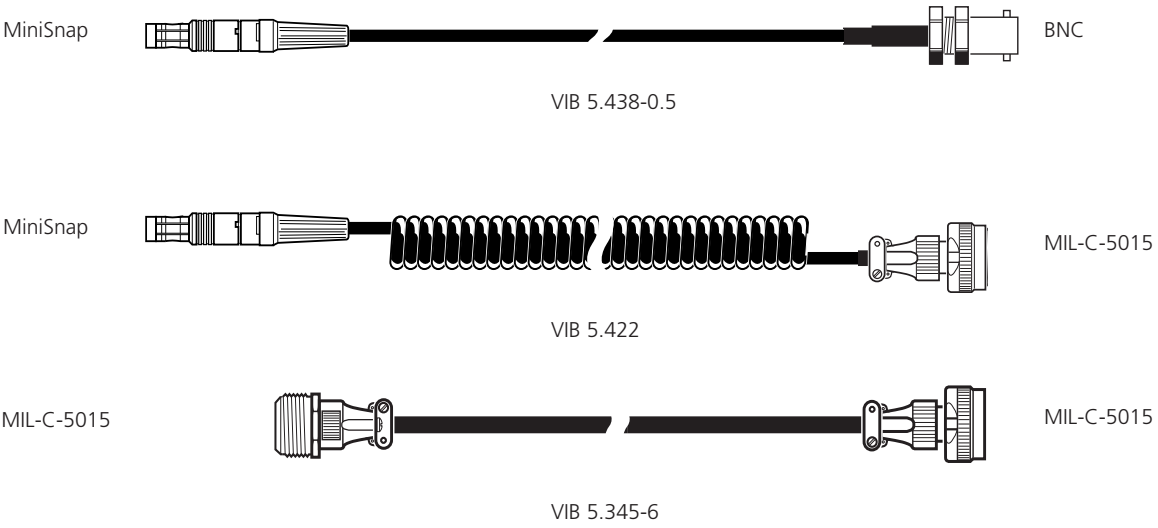
Connection cables for ICP-type accelerometers (VIBSCANNER / VIBXPERT)

VIB 5.438-0.5 :	Straight connection cable for ICP-type accelerometer, 0.5 m, BNC-connector (VIBSCANNER/ VIBXPERT)
VIB 5.422 :	Spiral connection cable for ICP-type accelerometer, MIL-connector (VIBSCANNER / VIBXPERT)
VIB 5.345-6 :	Cable extension for VIB 5.422, 6 meters, MIL-connector (VIBSCANNER / VIBXPERT)



Application

Standard sensor cable for connecting an ICP-type accelerometer or a microphone to the following data collectors:

- VIBXPERT II
- VIBXPERT I
- VIBXPERT EX*
- VIBSCANNER

Notes

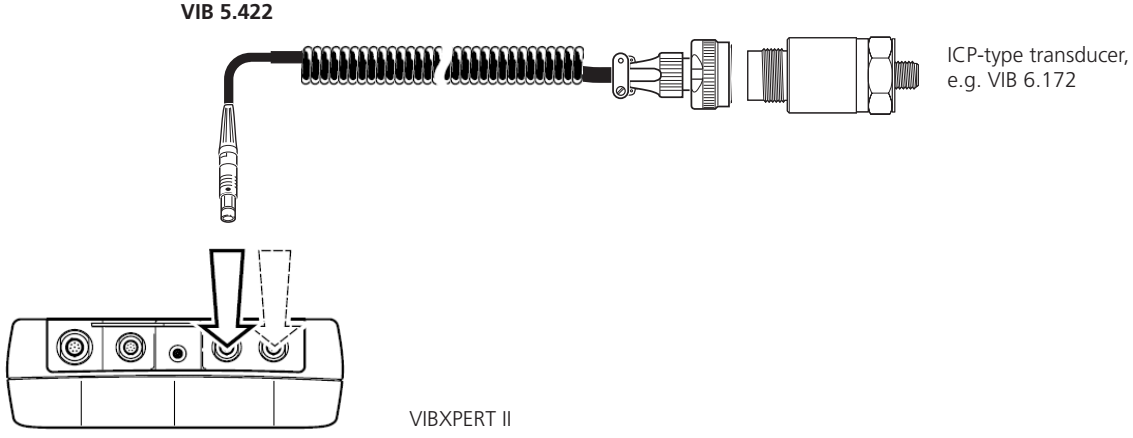
The intrinsically safe PRÜFTECHNIK ICP-type accelerometer VIB 6.172 XICP can be connected to VIBXPERT EX using the cable VIB 5.422, and be operated in gas hazardous area.

Cable lengths

VIB 5.438-0.5	0.5 m
VIB 5.422	0.7 ... 1.8 m
VIB 5.345-6	6 m

Connection example

ICP to VIBXPERT II



Cable adapters for the measurement of signal-low voltage / current with VIBXPERT II

VIB 5.433 :	Cable adapter for the measurement of signal-low voltage with VIBXPERT II / VIBSCANNER
VIB 5.434 :	Cable adapter for the measurement of signal-low current with VIBXPERT II / VIBSCANNER

VIB 5.433

VIB 5.434

Application

These cable adapters are used to measure signal-low voltage (AC: 0-30V) or signal levels (DC: 0-30V; 0-30 mA) provided by other measuring instruments.

An additional cable with at least one BNC plug is required to connect the adapter cable to the signal-measuring instrument.

Safety notes

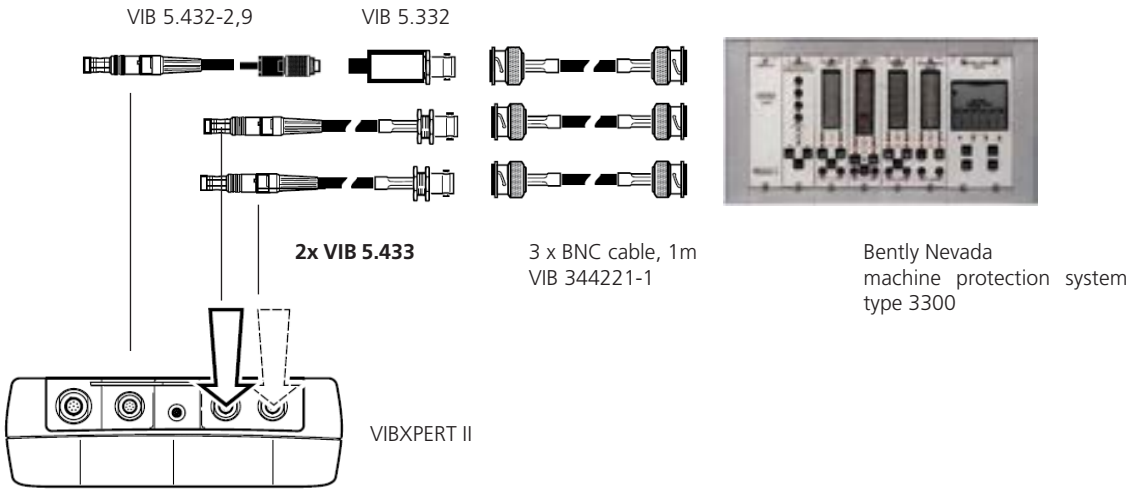
The cable adapters may not be used in hazardous areas!

All electric circuits in VIBXPERT II are galvanically connected. If more than one electric circuit is connected, a difference in potential may result in malfunctions.

The length of the spiral cable is 0.7 to 1.8 meters.

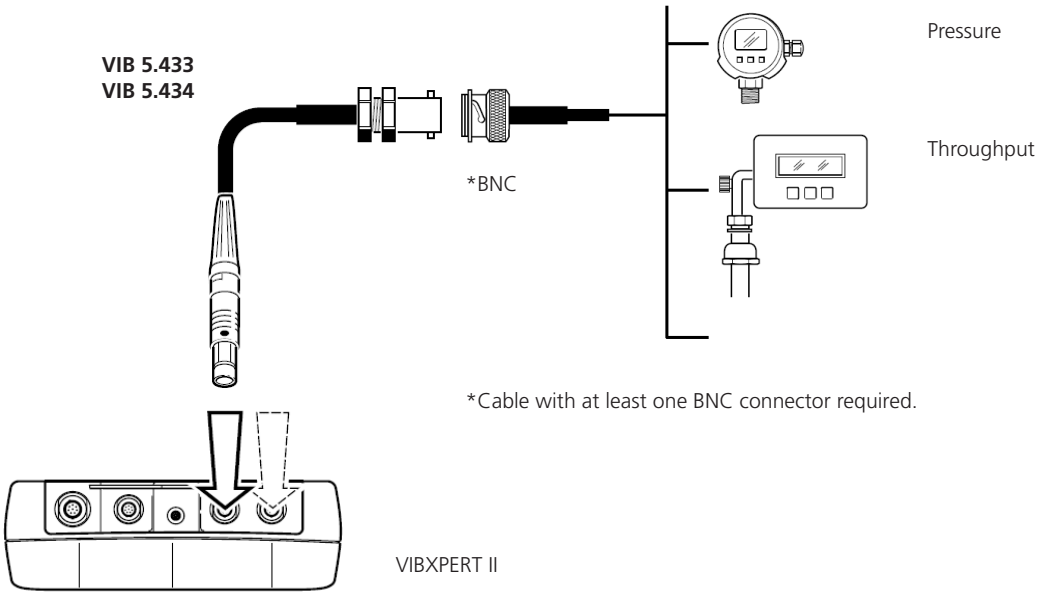
Application example

Measuring shaft vibration via machine protection system (e.g. Bently Nevada 3300) as voltage signal



Application examples

- Connection to pressure transmitter: Pressure as a current level (4-20mA)
- Connection to continuous flow measuring instrument:
  Throughput as a current or voltage level (4-20mA / 0-10V)



VIB 5.433 X : Cable adapter for the measurement of signal-low voltage with VIBXPERT EX / VIBSCANNER EX

Application

This cable adapter is used to measure signal-low voltage (AC/DC: 0-30V) provided by other measuring instruments.

An additional cable with at least one BNC plug is required to connect the adapter cable to the signal-measuring instrument (see example on next page).

Safety notes

The cable adapter may not be used in hazardous areas!

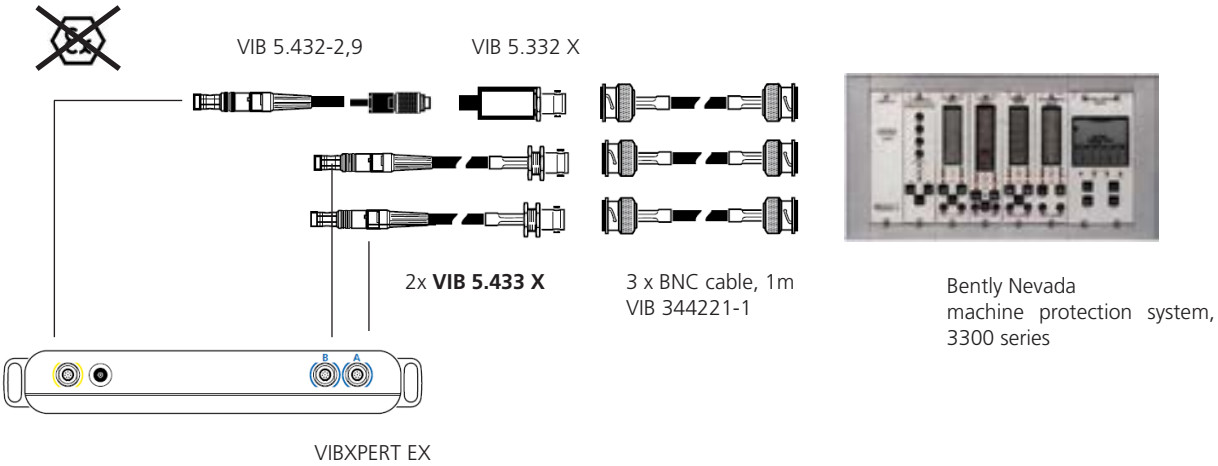
The cable adapter protects the analog port of the data collector (VIBXPERT EX / VIBSCANNER EX) against surges. The adapter must be connected with the data collector only outside the hazardous area to an electrical circuit, whose maximum voltage does not exceed 265 $V_{rms.}$ when a malfunction occurs.

Technical data

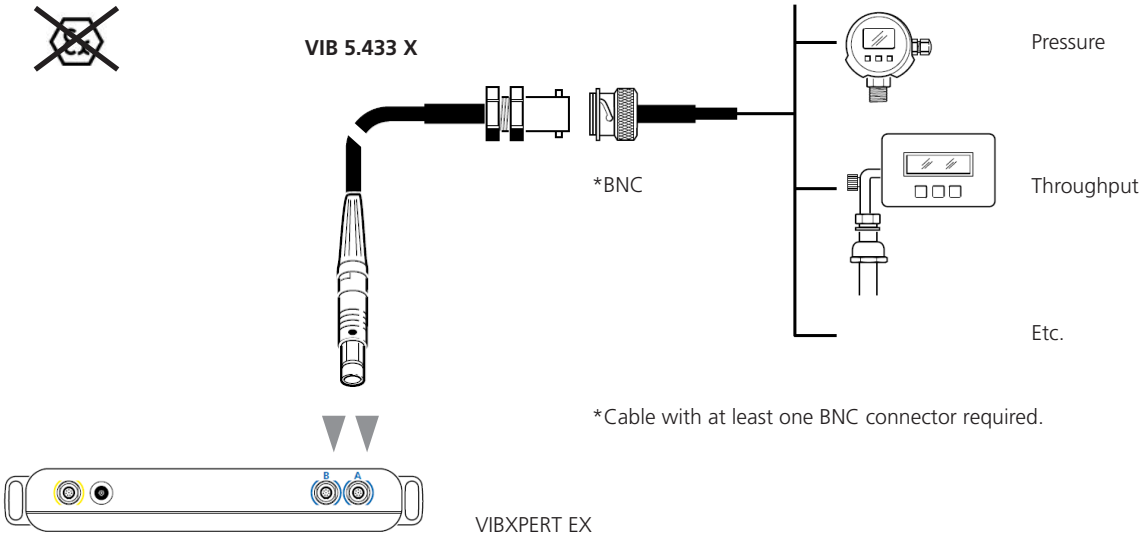
PARAMETER		VIB 5.433 X
General	Cable length	0.7 ... 1.8 m
	Temperature range	0°C ... + 40°C
	Maximum measurement error	-2,0% / +2,7%
	Upper frequency for AC measurements	5 kHz

Application example

Measuring shaft vibration via machine protection system (e.g. Bently Nevada 3300) as voltage signal

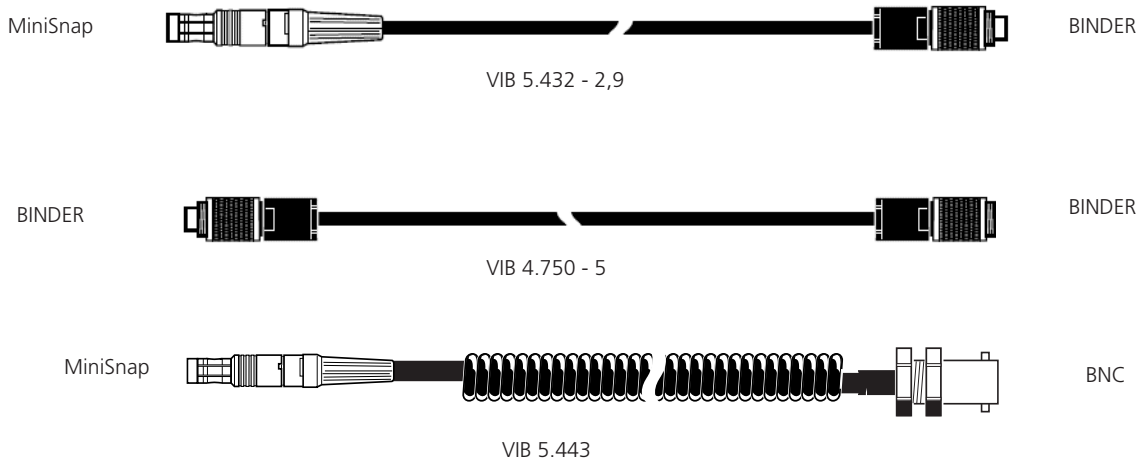


Application example
Pressure / Throughput as a voltage level (0-10V)



Connection cables for RPM sensors and trigger sensors (VIBSCANNER / VIBXPERT)

VIB 5.432-2,9 :	Connection cable for RPM sensors (VIBSCANNER / VIBXPERT)
VIB 4.750-5 :	Cable extension for VIB 5.432-2,9
VIB 5.443 :	Connection cable for TTL trigger sensors (VIBSCANNER / VIBXPERT)



Application

The VIB 5.432-2,9 cable is used to connect the PRÜFTECHNIK RPM sensors VIB 6.631 or VIB 6.631 EX to the following data collectors:

- VIBXPERT II
- VIBXPERT I
- VIBXPERT EX
- VIBSCANNER
- VIBSCANNER EX

The VIB 5.443 cable is used to connect a trigger sensor from other manufacturers.

Cable lengths

VIB 5.432-2,9	2.5 m
VIB 4.750-5	5.0 m
VIB 5.443	0.45 - 1.6 m

Application example

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VIB 5.431 : Cable for analog signal output (VIBSCANNER / VIBXPERT)

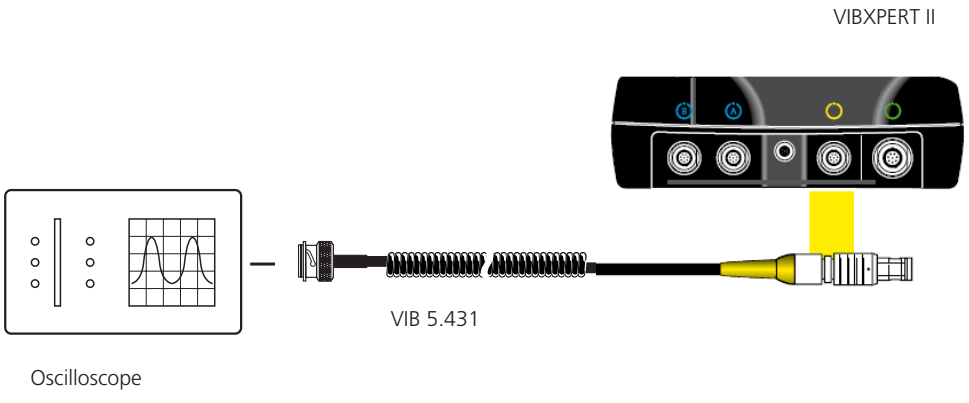
Application

In order to analyze the measured analog signal, a headset (> 450 Ohm) or an analytical instrument (e.g. oscilloscope) can be connected with this cable to the following data collectors:

- VIBXPERT II
- VIBXPERT I
- VIBXPERT EX
- VIBSCANNER
- VIBSCANNER EX

Cable length: 0.7 to 1.8 meters

Application example



VIB 5.332 :Keyphasor adapter for machine protection systems (VIBSCANNER / VIBXPERT)

Application

This adapter converts a pulse signal (including the DC level) to a 5V rectangular signal. Keyphasor signals can thereby be measured at a machine protection system output with PRÜFTECHNIK instruments:

- VIBXPERT II
- VIBXPERT I
- VIBSCANNER

Connection

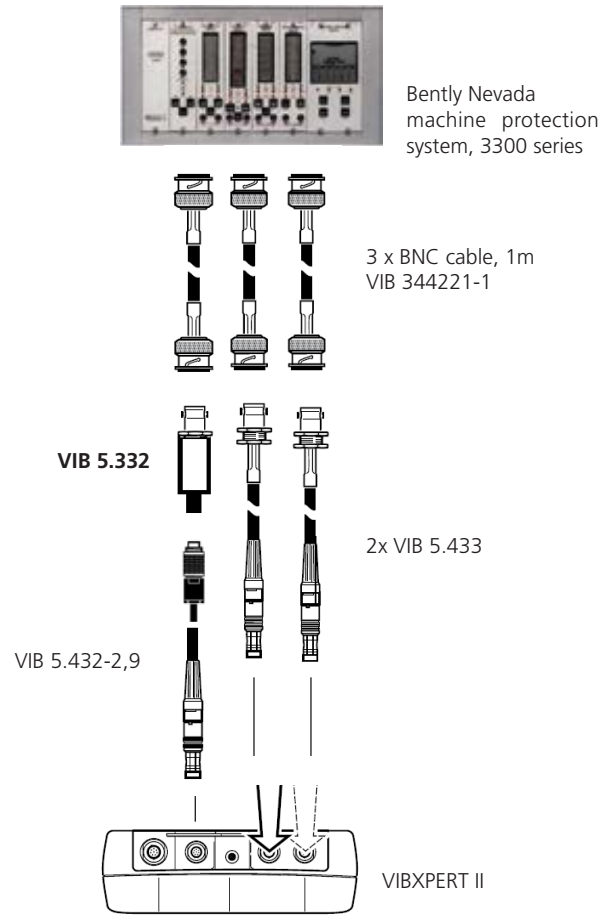
On the instrument side, the adapter is equipped with an 8-pin binder socket that is connected to trigger cable VIB 5.432-2,9. The signal input side provides a BNC socket.

Technical data

	PARAMETER	VIB 5.332
Electrical	Operating voltage	5.4 V ± 10%
	Power consumption	0.5 mA
	Input signal, Pulse width	> 100 µs
	-, Pulse level	> 500 mV_{pp}
	-, DC fraction	+8 V to -30 V
	Output signal	5 V, rectangular signal
	Input resistance	200 kOhm
	Output resistance	1 kOhm
Mechanical	Housing material	Stainless steel, VA 1.4301
	Length, incl. connectors	130 mm
	Diameter	15 mm
	Weight	30 g
	Env. protection class	IP 65
	Temperature range	0°C ... +60°C
Interfaces	Input signal	Binder connector, 8 pin, 712 series
	-, Pin allocation	2 / 5V, 4 / rectangular signal, 7 / GND
	Output signal	BNC connector
	-, Pin allocation	internal contact / signal, external contact / GND

Application example

VIBXPERT II connected to Bently Nevada 3300 series



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VIB 5.332 X : Keyphasor adapter for machine protection systems (VIBSCANNER EX / VIBXPERT EX)

Application

This adapter converts a pulse signal (including the DC level) to a 5V rectangular signal. Keyphasor signals can thereby be measured at a machine protection system output with PRÜFTECHNIK instruments:

- VIBXPERT EX
- VIBSCANNER EX

Connection

On the instrument side, the adapter is equipped with an 8-pin binder socket that is connected to trigger cable VIB 5.432-2,9. The signal input side provides a BNC socket.

Technical data

PARAMETER		VIB 5.332 X
Electrical	Operating voltage	5.4 V ± 10%
	Power consumption	0.5 mA
	Input signal, Pulse width	> 100 µs
	-, Pulse level	> 500 mV_{pp}
	-, DC fraction	+8 V to -30 V
	Output signal	5 V, rectangular signal
	Input resistance	200 kOhm
	Output resistance	1 kOhm
Mechanical	Housing material	Stainless steel, VA 1.4301
	Length, incl. connectors	130 mm
	Diameter	15 mm
	Weight	30 g
	Env. protection class	IP 65
	Temperature range	0°C ... +40°C
Interfaces	Input signal	Binder connector, 8 pin, 712 series
	-, Pin allocation	2 / 5V, 4 / rectangular signal, 7 / GND
	Output signal	BNC connector
	-, Pin allocation	internal contact / signal, external contact / GND

Safety notes

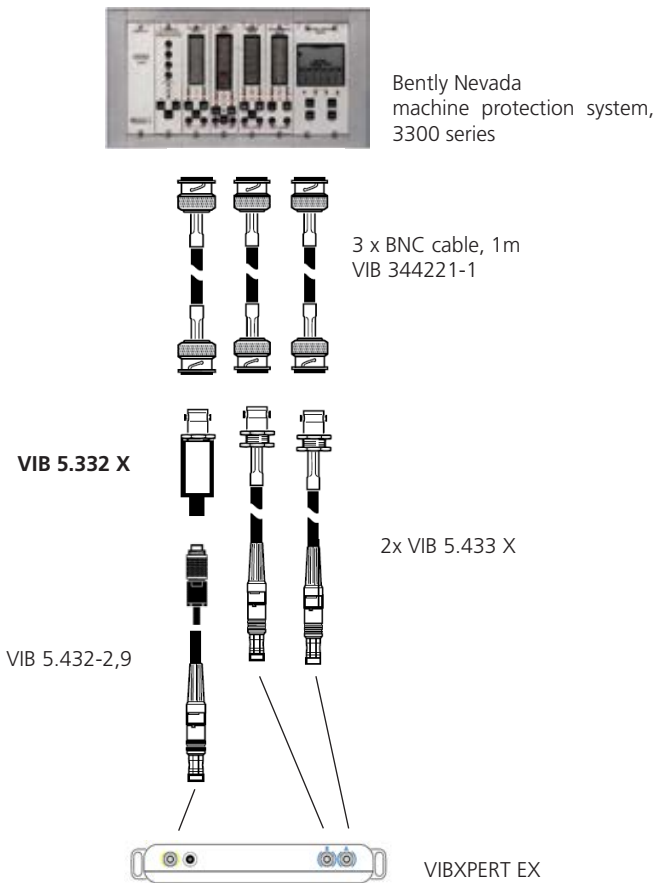
The adapter may not be used in hazardous areas!

The adapter protects the digital port of the VIBXPERT EX against surges. The adapter must be connected with VIBXPERT EX only outside the hazardous area to an electrical circuit, whose maximum voltage does not exceed 265 $V_{rms.}$ when a malfunction occurs.

Ambient temperature: 0°C to + 40°C.

Application example

VIBXPERT EX connected to Bently Nevada 3300 series



VIB 5.333 : Cable adapter for TTL / strobe output (VIBXPERT)

Application

The VIB 5.333 cable adapter is used to connect a stroboscope to VIBXPERT. The flash rate is controlled by the cursor on the spectrum.

Connection

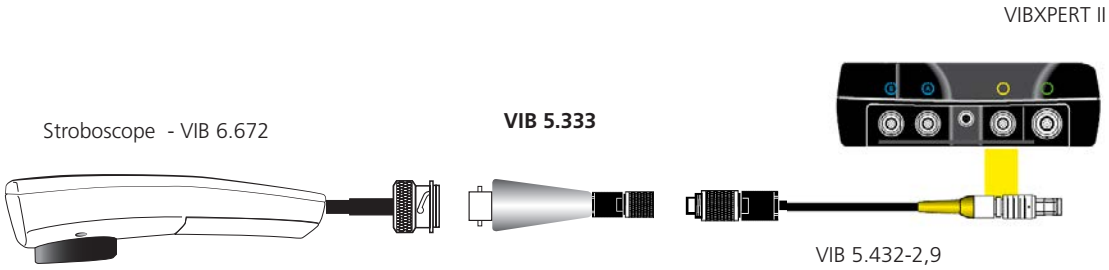
BNC: Stroboscope trigger input with BNC cable.
Binder: VIBXPERT digital input with cable VIB 5.432-2,9.

Technical data

PARAMETER		VIB 5.333
Mechanical	Housing material	Aluminium
	Length, incl. connectors	62 mm
	Diameter	15 mm
	Weight	20 g

Application example

VIBXPERT II connected to stroboscope



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VIB 5.336 : Cable adapter for triaxial accelerometer (VIBXPERT)

Application

The cable adapter VIB 5.336 is used to connect the triaxial accelerometer VIB 6.655 to the VIBXPERT II instrument. It is not permissible to connect the triaxial accelerometer to VIBXPERT EX.

Connectors

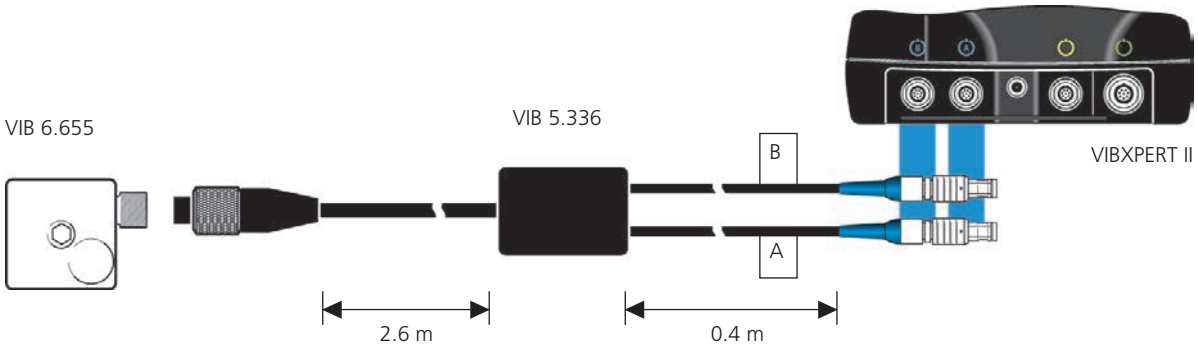
MiniSnap: Analog inputs A & B
MiniMIL: Triaxial sensor VIB 6.655

Technical data

PARAMETER		VIB 5.336
Design	Conductor	4-pin AWG25, spiralized CTC cable from adapter to sensor
	Cable sheath	PU
	Diameter	5.3 mm
	Cable length, instrument side	approx. 0.4 m
	-, sensor side	approx. 2.6 m
Environment	Operation temperature range	-10 °C ... +60 °C
	Storage temperature range	-20 °C ... +80 °C
	Rel. humidity	< 95 %
	Env. protection	IP 65
	Weight	approx. 310 g

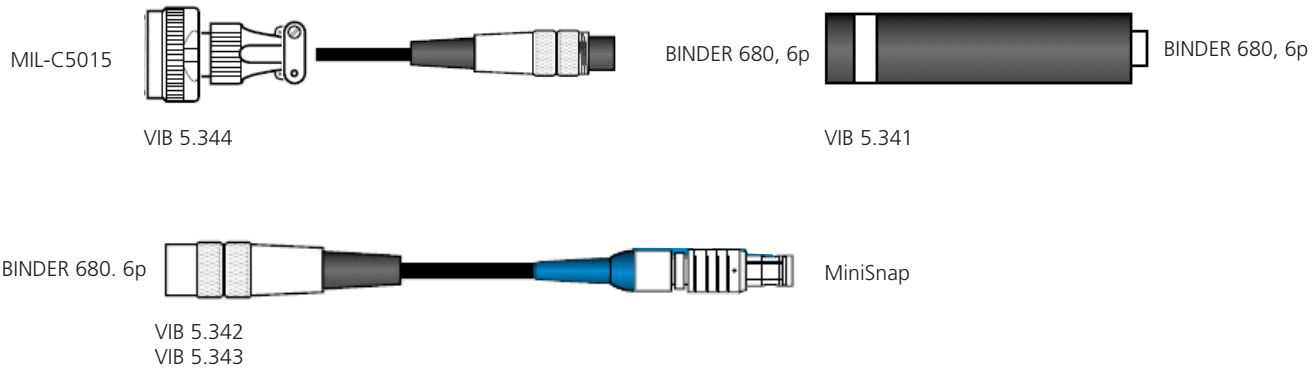
Application example

VIBXPERT II connected to triaxial accelerometer VIB 6.655



Adapters and cables for voltage-supplied sensors and VIBROTECTOR (VIBXPERT)

VIB 5.341 :	VST 24V adapter for VIBXPERT II
VIB 5.342 :	Analog cable for VST 24V adapter
VIB 5.343 :	Digital cable for VST 24V adapter
VIB 5.344 :	VIBROTECTOR cable for VST 24V adapter



Application

The VST 24V adapter is used for connecting any sensors with a power supply (-24 VDC) to the VIBXPERT II instrument.

Examples of sensors:

- AS-022: accelerometer
- IN 085: non-contacting displacement sensor from Brüel & Kjaer Vibro / Schenck Vibro.
- VIBROTECTOR: vibration transmitter from PRÜFTECHNIK Condition Monitoring

To measure RPM, sensors with a power supply (-24 VDC) or rpm reference sensors with an external supply can be connected. The minimum required trigger level is 2 volts.

Safety note

Do not operate VIBXPERT II with the charger unit when the adapter is connected.

Cleaning notes

- Clean with a moist cloth.
- Use a mild detergent or alcohol.

Connection

The VST 24V adapter is connected to the sensor and instrument using the cables provided:

Analog cable - VIB 5.342:
Connection cable between adapter and VIBXPERT II for measurement of vibration acceleration, velocity and displacement.

Digital cable - VIB 5.343:
Connection cable between adapter and VIBXPERT II for RPM measurement.

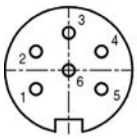
VIBROTECTOR cable - VIB 5.344:
Connection cable between adapter and VIBROTECTOR vibration transmitter. The adapter is connected to VIBXPERT II with the analog cable (VIB 5.342).

Cable length: 2.9 meters

Technical data

PARAMETER		VIB 5.341
Electrical	Output voltage U_{out}	-24V, unregulated (dep. on VIBXPERT)
	Frequency range, Signal IN - Analog Out Signal IN - Trigger Out	0.1 Hz ... 100 kHz
Mechanical	Case material	stainless steel + heat shrink tubing
	Plug	DIN 41524, BINDER 680, 6 pole, m / f
	Dimensions L x D	120 x 27 mm
	Weight	105 g
	Protection class	IP 40
	Temperature range	-10°C ... +60°C

Plug pin allocation,
sensor side



1: -24 VDC
2: Analog signal (Sensor)
3: Trigger signal (5V TTL)
4: GND
5: Shield
6: 5 VDC (Voltage from VIBXPERT)

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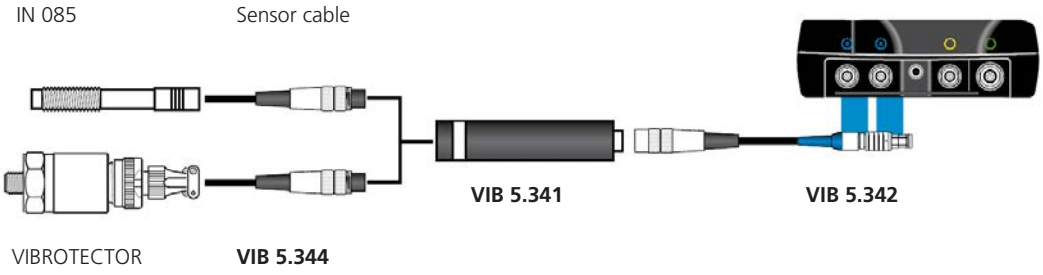
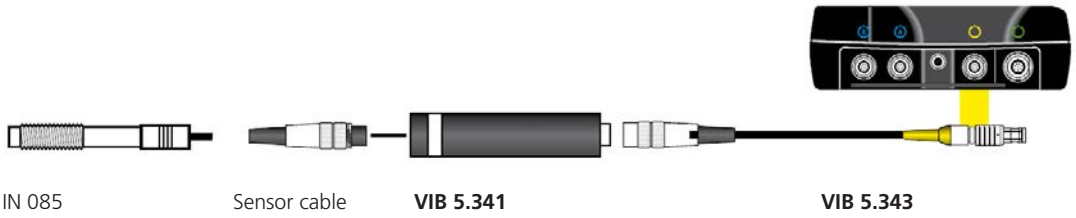
Connection examples

- Displacement measurement with IN 085 sensor
- Vibration measurement with VIBROTECTOR



- RPM measurement with IN 085 sensor



VIB 5.439 : Connection cable for Pt100 temperature probe (VIBSCANNER)

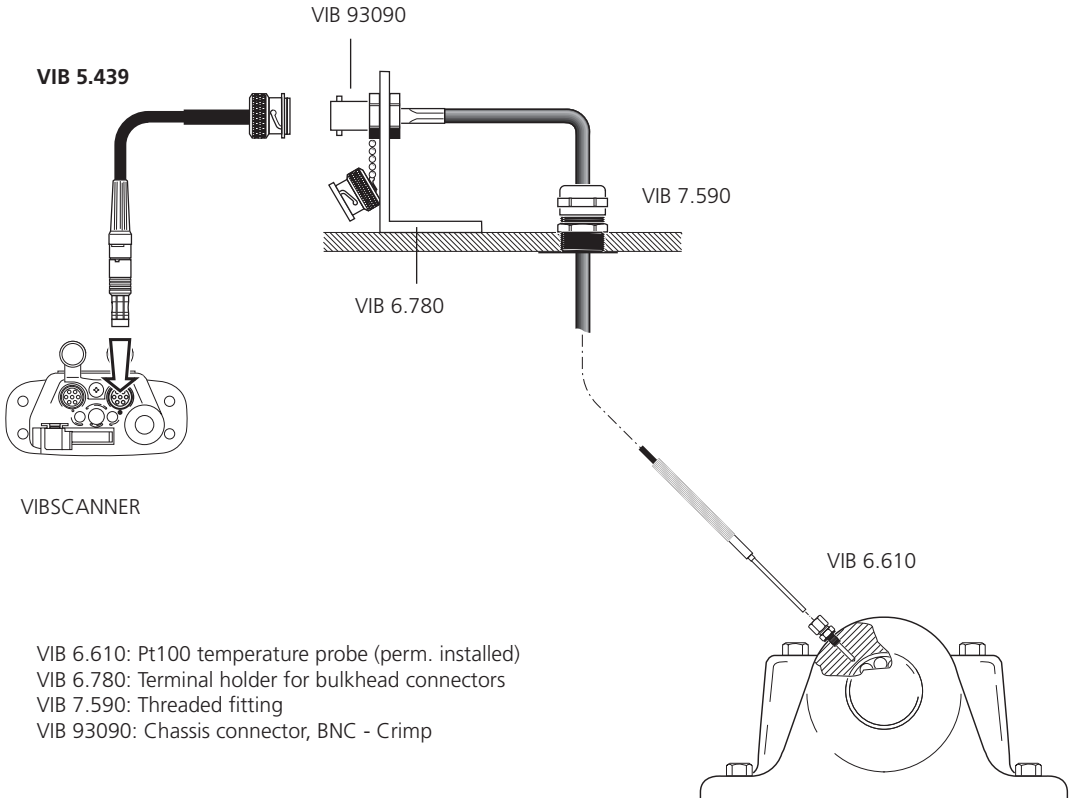
Application

This cable is used to connect a Pt100 temperature probe to VIBSCANNER for temperature measurements.

Cable length: 0.7 ... 1.8 meters

Connection example

Pt100 probe connected to VIBSCANNER



VIB 6.610: Pt100 temperature probe (perm. installed)
VIB 6.780: Terminal holder for bulkhead connectors
VIB 7.590: Threaded fitting
VIB 93090: Chassis connector, BNC - Crimp

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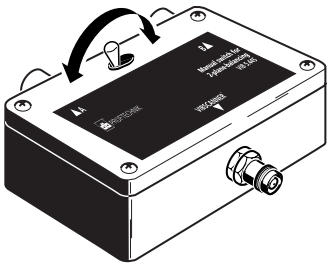
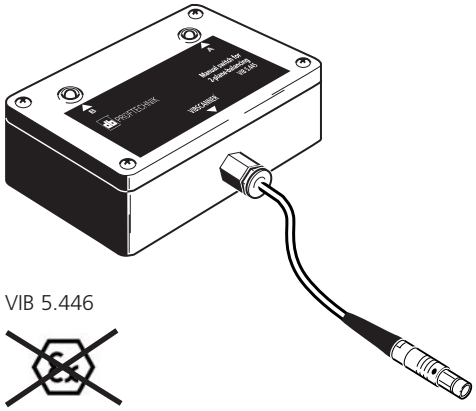
VIBSCANNER channel switches

VIB 5.445 : Manual channel switch for 2-plane balancing with VIBSCANNER

VIB 5.446 : Automatic channel switch for 2-plane balancing with VIBSCANNER



VIB 5.445



VIB 5.446

Application and function

The channel switch provides two inputs for accelerometers, which are merged into one output channel. The channel switching is done either via a toggle switch (VIB 5.445) or automatically controlled by the VIBSCANNER application program (VIB 5.446).

This simplifies e.g. the (sequential) balancing in two planes, because the accelerometers do not have to be unplugged when changing the balancing plane.

Connection

With the manual channel switch VIB 5.445, the accelerometers are connected each with a coaxial cable with TNC connector (VIB 311221-L). The channel switch itself is plugged in VIBSCANNER with the connection cable for linedrive accelerometers VIB 5.436.

The automatic channel switch VIB 5.446 is connected directly to VIBSCANNER. For each sensor, a connection cable for linedrive accelerometers (VIB 5.436) is required.

Note

The automatic switch cannot be operated with VIBSCANNER EX!

Accessories

VIB 5.436	Conn. cable for linedrive accelerometers
VIB 311221-L	Coaxial cable, TNC (2x), L= cable length

Technical data

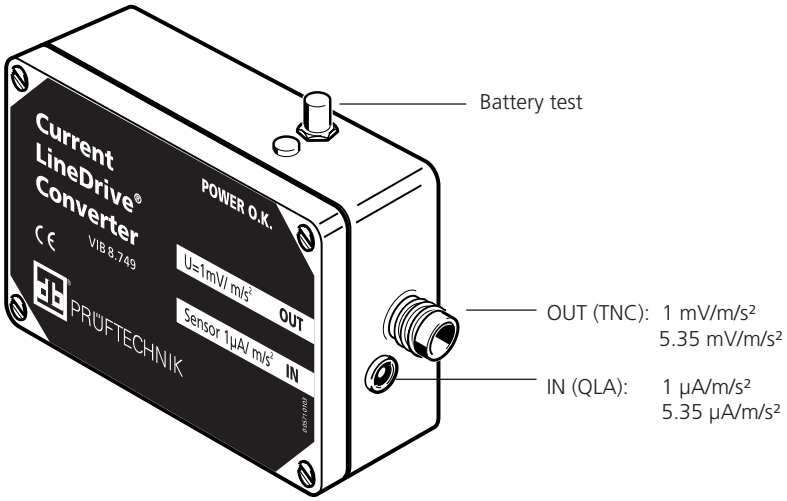
PARAMETER		VIB 5.445	VIB 5.445
Mechanical	Case material	Aluminium	
	Connections	1x TNC socket, 2x TNC socket	1x Cable with MiniSnap plug 2x MiniSnap sockets
	Dimensions L x B x H	97 x 63 x 35 mm	
	Weight	approx. 230 g	

Application example

VIB 5.446 to VIBSCANNER

VIB 5.446

VIB 8.749 : Current Linedrive converter for data collector with voltage input



Description

This adapter converts the current signal of a current line drive accelerometer into a voltage signal. Thus PRÜFTECHNIK accelerometers can be connected to data collectors with voltage input. The adapter is powered by two 9V batteries.

Note

Battery condition can be checked at the press of a button: if the green LED lights up, the batteries are loaded.

Connection

The accelerometer is connected to the adapter with a VIBROTIP sensor cable (e.g. VIB 4.704-2). The data collector is plugged into the signal output socket using a suitable TNC cable.

Technical data

PARAMETER		VIB 8.749
Electrical	Power requirement	2x 9 volt batteries (6LR61)
	Sensitivity	1 mV / 1 µA
	Accuracy	±1%of measured value
	Current consumption	6 mA (w/ sensor)
	Operating duration	approx. 75 hours
General	Dimensions, H x W x D	3.5 x 11 x 6 cm
	Env. protection	IP 50
	Temperature range	+10°C ...+40°C
	Weight, incl. batteries	approx. 320 g

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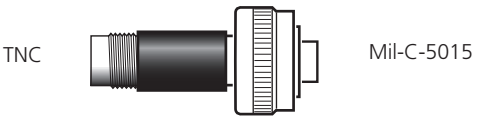
Cable adapters for accelerometers with Mil-type connector

VIB 5.449-CLD : Cable adapter for CLD-type accelerometer VIB 6.195

VIB 5.449-ICP : Cable adapter for ICP-type accelerometer VIB 6.172

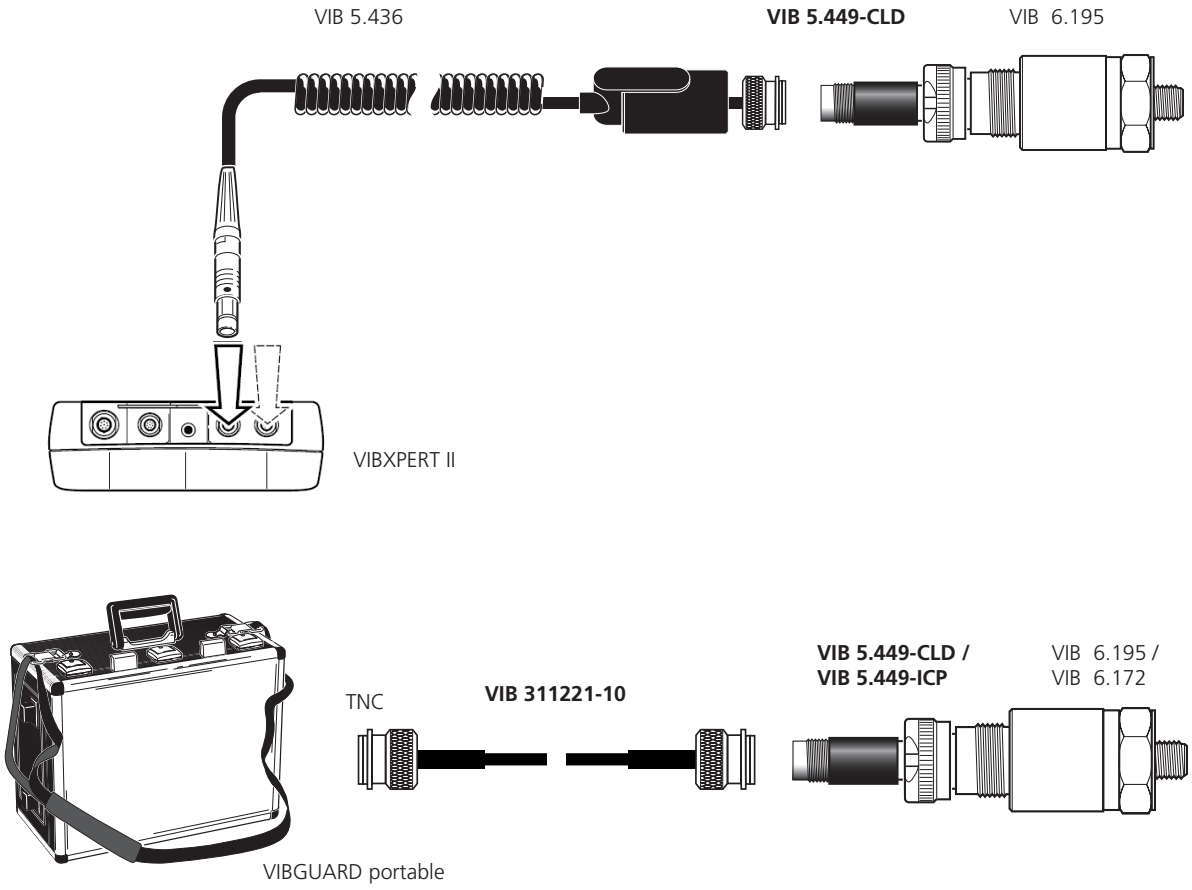


Application

Connection of accelerometers with Mil-type connectors, e.g. VIB 6.195 (CLD type) or VIB 6.172 (ICP type) to the following PRÜFTECHNIK instruments:

- VIBXPERT II
- VIBGUARD portable
- VIBSCANNER

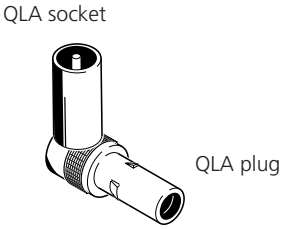
Application example



Cable adapters for VIBROTIP

VIB 4.705 :	BNC to QLA cable adapter
VIB 8.617 :	QLA angled plug

VIB 4.705



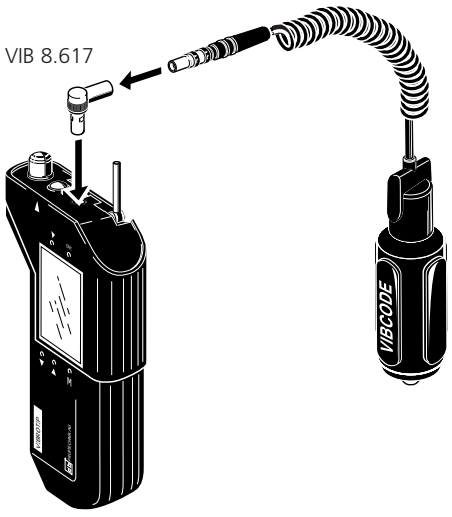
VIB 8.617

Application

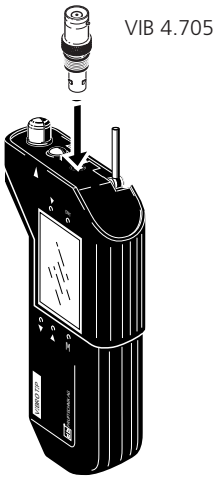
These adapters extend the connection options at the QLA input of the VIBROTIP data collector.

The VIB 4.705 adapter connects transducers with BNC connector to the data collector. The VIB 8.617 adapter is used to connect external vibration sensors to VIBROTIP so that they do not interfere with measurements using the built-in temperature probe or RPM sensor.

Connection example
VIB 8.617 to VIBROTIP and VIBCODE



Connection example
VIB 4.705 to VIBROTIP



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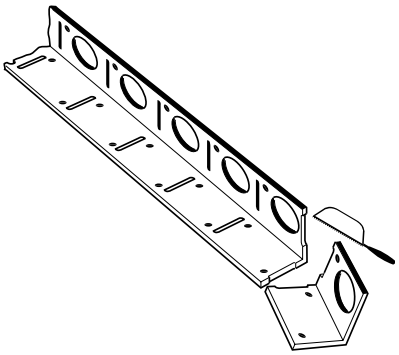
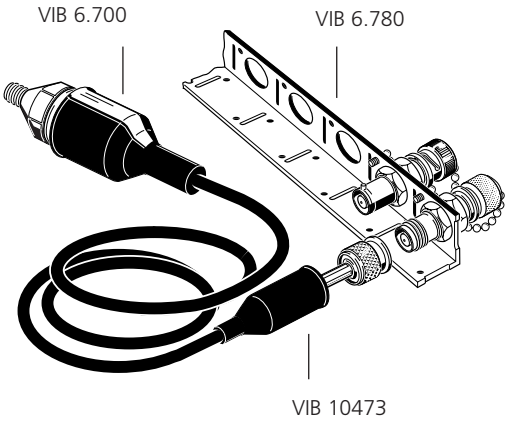
Terminal holder for bulkhead connectors

VIB 6.780 : Terminal holder for bulkhead connectors

VIB 10473 : Dust cap for TNC connector





Application

Up to 12 sensor cables are joined at the terminal holder to record the measured values conveniently with a data collector.

The cables are mounted on the terminal holder with the aid of bulkhead connectors. The terminal holder can be sawn to the required length.

The TNC dust cap VIB 10473 hermetically seals the connection between the sensor cable and the bulkhead connector.

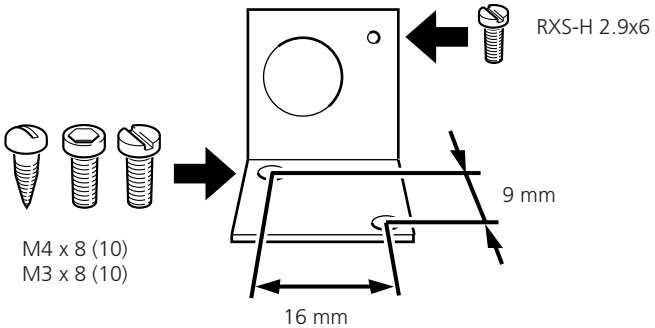
Note

To seal the connection between the accelerometer and the sensor cable a dust caps with a larger diameter is required (e.g. VIB 6.700).

Technical data

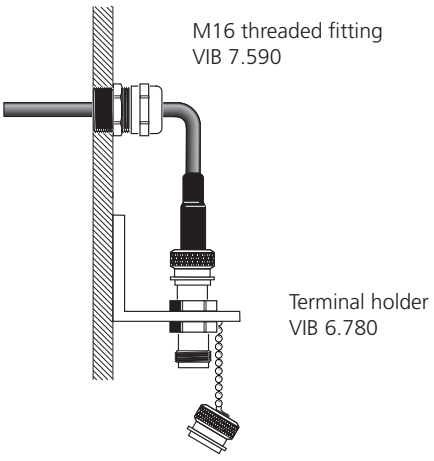
PARAMETER		VIB 6.780	VIB 10473
General	Material	Plastic PA	Silicone (HTV R 701)
	Env. protection	---	IP 65
	Temperature range	0°C ...+85°C	< +200°C
	Chemical resistance	--	aliphatic hydrocarbons (mineral oils)

Mounting hole



The screws are not included in the scope of delivery

Mounting example

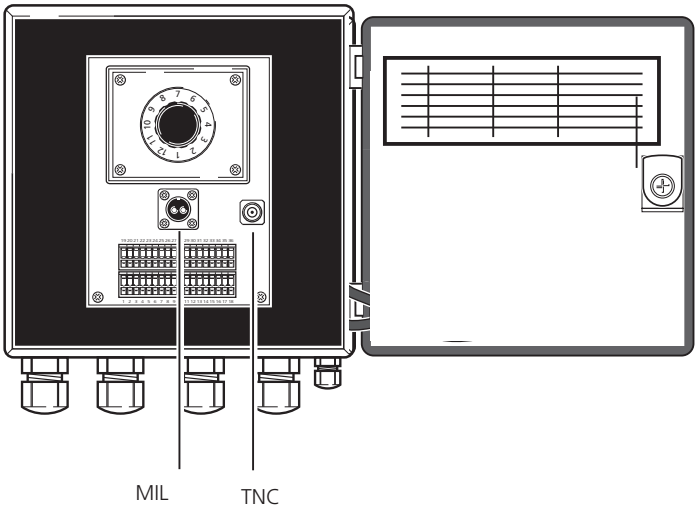


TNC bulkhead connector, threaded version
VIB 93036 S

Attention!

The bulkhead connector dust cap is attached to a metal cord. To electrically insulate the connector, the dust cap must only come into contact with insulated components.

VIB 6.785 : SwitchBox - Channel switching unit for CLD-/ ICP-type accelerometers, 12 ch.



Application

The SwitchBox channel switching unit VIB 6.785 has been designed to enable inaccessible measurement locations to be monitored and hard wired back to a safe position.

The channels are individually selected by a rotary switch. The data collector (e.g. VIBSCANNER or VIBXPERT) is connected to one of the two sockets (TNC/MIL) using an appropriate cable.

Installation

The SwitchBox requires no external power supply. Up to 12 accelerometers can be connected to the SwitchBox. All accelerometer cables are glanded into the SwitchBox, terminations are made off into spring terminals. The VIB 81060 screwdriver is included in the scope of delivery for the installation of the accelerometer cables.

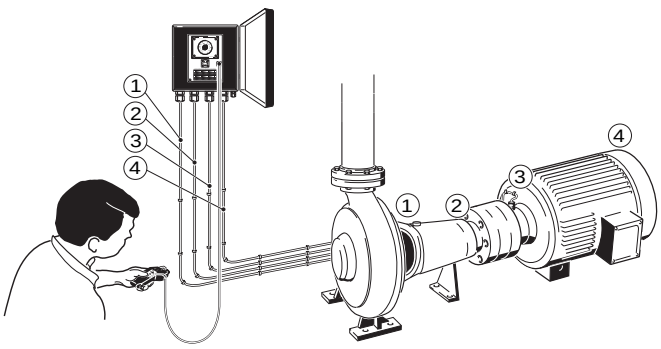
As of version 1.1 the SwitchBox can also be installed in hazardous areas.

Accessories

VIB 5.436 Spiral cable for Linedrive accelerometer, TNC
VIB 5.422 Cable for ICP-type accelerometer, MIL

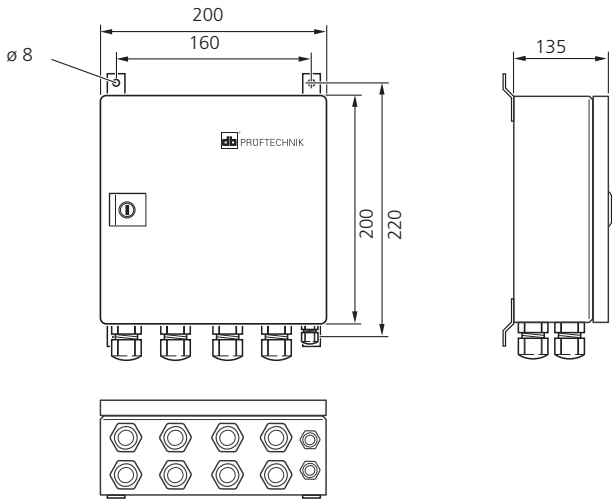
Technical data

PARAMETER		VIB 6.785
General	Input	Up to 12 accelerometers (ICP or LineDrive)
	Output	one via TNC or MIL socket
	Temperature range	- 20°C ... + 60°C
	Env. protection	IP 65



Dimensions

in mm



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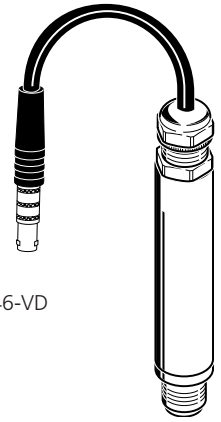
SPM cable adapter for data collectors

VIB 8.746-VD : SPM cable adapter for VIBROTIP

VIB 8.746-VS : SPM cable adapter for VIBSCANNER / VIBXPERT



VIB 8.746-VD

Application

The SPM cable adapter is used to connect PRÜFTECHNIK data collectors to existing SPM 40000 or TRA 30 measurement sensors by converting the voltage signal to a current signal.

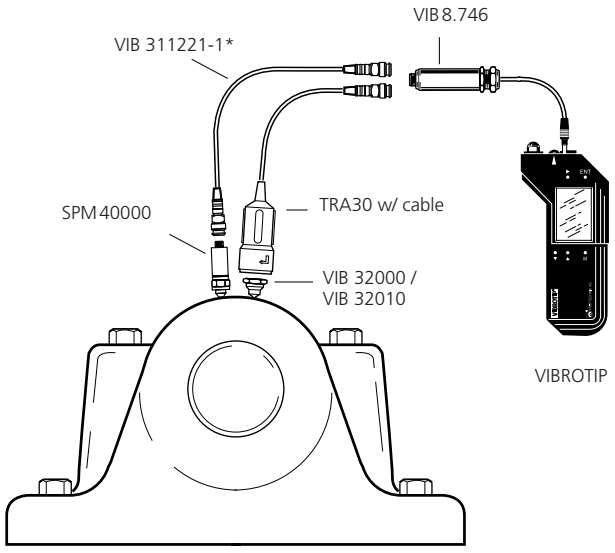
Note

The SPM cable adapter may not be used in hazardous areas!

Technical data

PARAMETER		VIB 8.746-VD	VIB 8.746-VS
General	Input	QLA	MiniSnap
	Output	TNC	
	Length	approx. 240 mm	
	Diameter	16 mm	

Application example



* This cable is not included in the scope of delivery

VIBXPERT II connection cable and adapter for VIBRONET field multiplexer

VIB 5.346:	Connection cable, VIBXPERT II to VIBRONET field multiplexer
VIB 5.346-MUX :	BNC connection adapter for cable VIB 5.436

VIB 5.346

VIB 5.346-MUX

Application

These cables are used to connect the VIBXPERT II data collector to a VIBRONET field multiplexer (VIB 8.306) for automatic data acquisition at many measurement locations of the same type or hard-to-access measurement locations.

The measurement locations are combined on one string line and are measured consecutively.

Notes

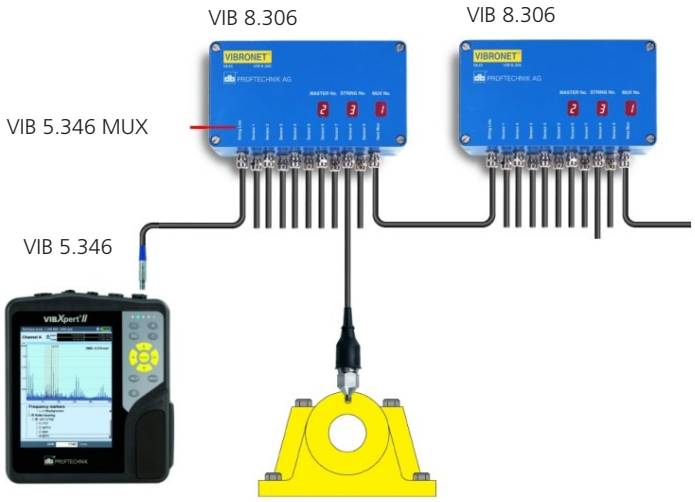
Only vibration measurements with Current Linedrive accelerometers are possible.

Up to 6 multiplexers with a maximum of 54 measurement locations are possible on one string line.

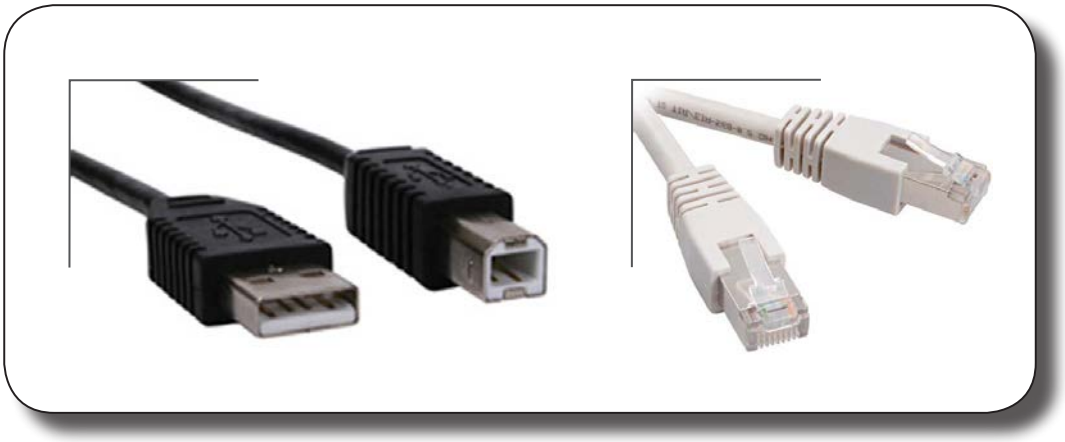
It is not permissible to connect these cables to VIBXPERT EX!

Cable lengths
VIB 5.346 1.5 meters
VIB 5.346-MUX 0.16 meters

Application example



Chapter 6
Communication cables



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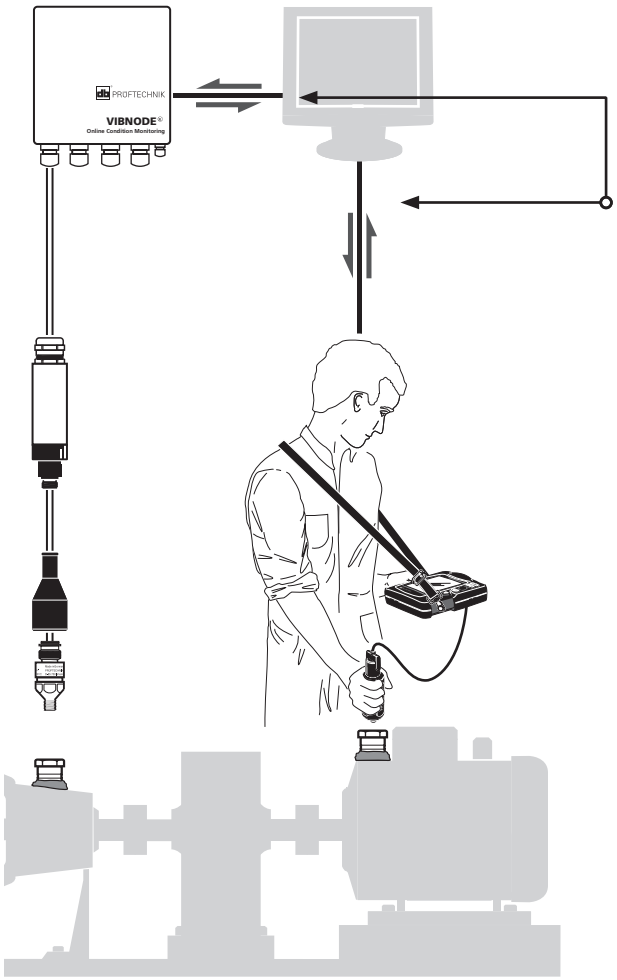
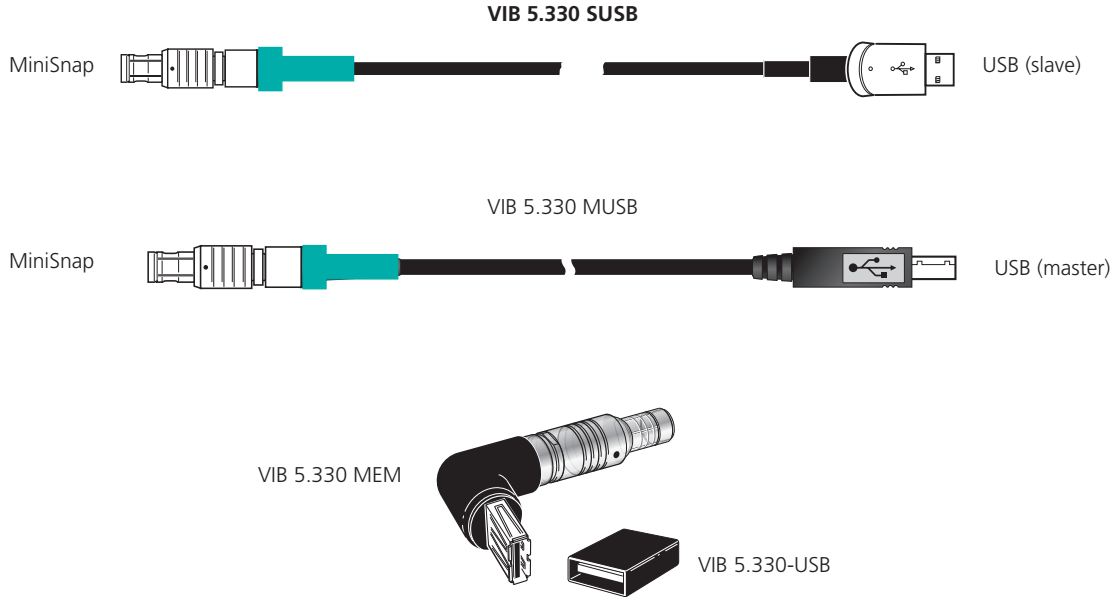
Contents: Communication cables



VIBXPERT II USB cables and adapters

VIB 5.330 MUSB :	VIBXPERT II USB cable for peripheral devices (Master)
VIB 5.330 SUSB :	VIBXPERT II USB cable for communication (Slave)
VIB 5.330 MEM :	VIBXPERT II adapter for USB pen drive
VIB 5.330-USB :	VIBXPERT II USB pen drive



Application

VIBXPERT II has a USB interface which can be used for communication and data transfer with a computer as well as for printing reports on a printer.

The cable for peripheral devices VIB 5.330 MUSB is used for connecting the printer. The connection to the PC is made with the cable VIB 5.330 SUSB. The adapter VIB 5.330-MEM is used to store reports in PDF format on the VIBXPERT II USB pen drive VIB 5.330-USB.

Cable lengths: 2 meters

Note

These cables and the adapter may not be used with VIBXPERT EX!

Application examples

Data transfer via USB

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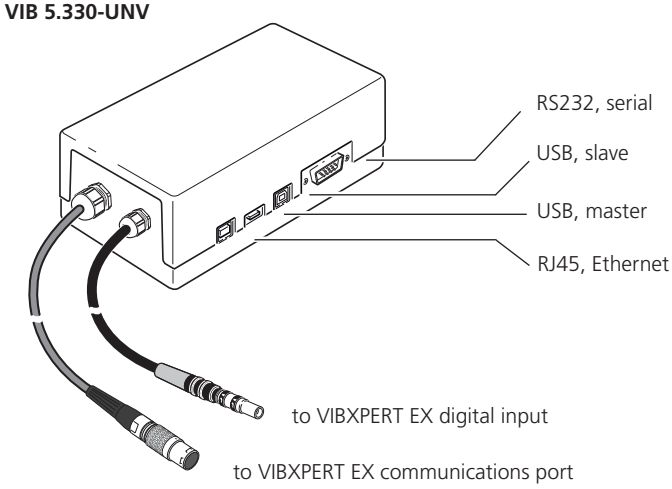
Communication adapter and USB cable for VIBXPERT EX

VIB 5.330 UNV : Universal communication adapter for VIBXPERT EX

VIB 5.338 : USB cable for VIBXPERT EX

VIB 5.330-UNV



VIB 5.338

Application

The VIB 5.330-UNV adapter is a communication and printer interface for VIBXPERT EX. The adapter protects the instrument against damage due to over voltages that may arise from connecting non-certified peripheral equipment.

Connection

The adapter is connected to VIBXPERT EX using the integrated cables. The connectors are color-coded to match the instrument sockets.
The adapter is connected to the PC via the serial or USB (slave) interface. An RJ45 socket is provided for the network connection. To print out reports from VIBXPERT EX, the adapter must be connected to a suitable printer via USB (master) and to a running PC via USB (slave) in order to operate the printer.

Cable length, VIB 5.338: 2 meters

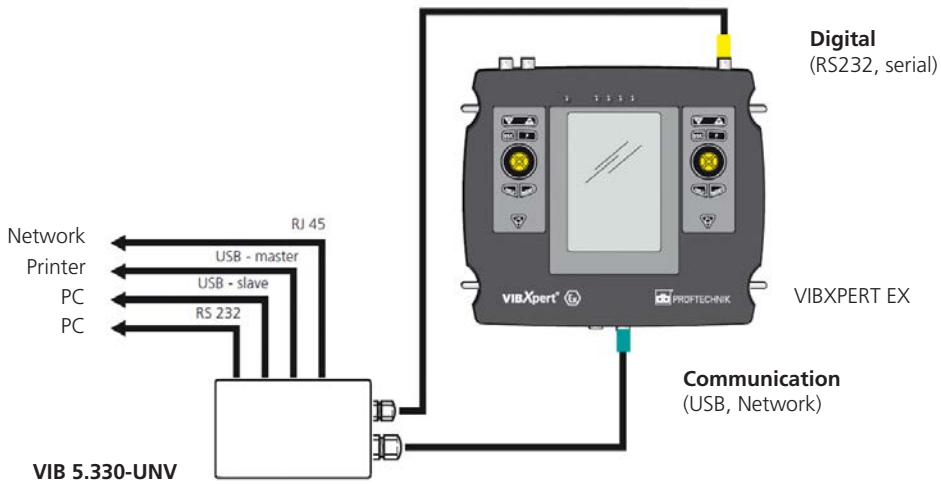
Note

The adapter may not be used in hazardous environments! The adapter can also be operated with standard VIBXPERT (non-EX version).

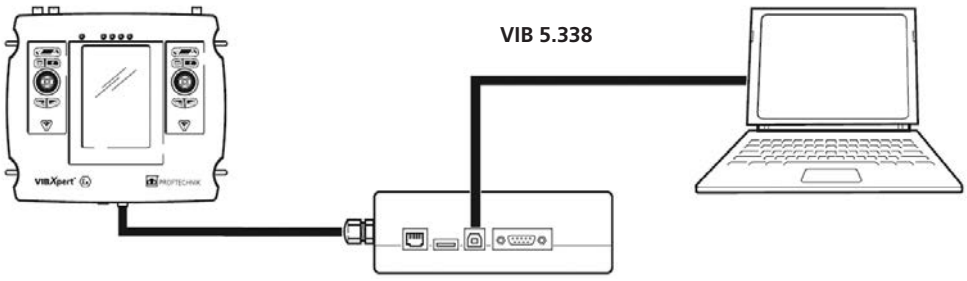
Technical data

PARAMETER		VIB 5.330-UNV
Interfaces	VIBXPERT side	Two integrated connecting cables for digital and communications port
	PC	RS 232 and USB (slave)
	Printer	USB (master)
	Network	RJ 45
General	Case material	Plastic - Polystyrol
	Dimensions, L x B x H	170 x 80 x 55 mm
	Weight	approx. 350 g

Application example
VIB 5.330-UNV connected to VIBXPERT EX



Application example
PC connected to VIBXPERT EX



VIB 5.330-UNV

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VIB 5.331: VIBXPERT II Ethernet cable

VIB 5.331

Application

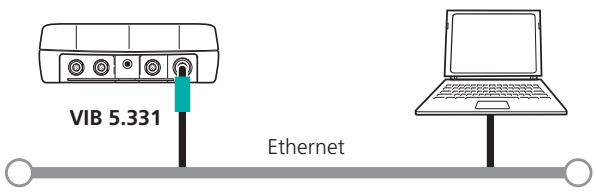
The VIBXPERT II is connected with the cable VIB 5.331 to an ethernet network to a hub or to a PC for data transmission.
Cable length: 2 meters

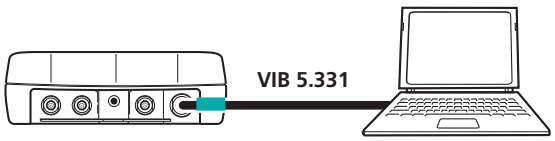
Note

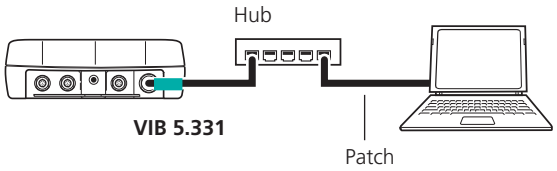
This cable may not be used with VIBXPERT EX!

Application examples

Data transfer via Ethernet







Serial PC cables for VIBROTIP, VIBSCANNER and VIBXPERT

VIB 5.430-2 :	Serial PC cable (VIBSCANNER / VIBXPERT)
VIB 5.448 :	Adapter cable, serial to USB (VIBSCANNER / VIBXPERT)
VIB 8.619 :	Serial PC cable (VIBROTIP)

VIB 5.430-2

VIB 8.619

VIB 5.448

Application

These cables are used for data transmission via the serial interface.

The adapter cable VIB 5.448 is additionally required if the PC or the laptop only has a USB port.

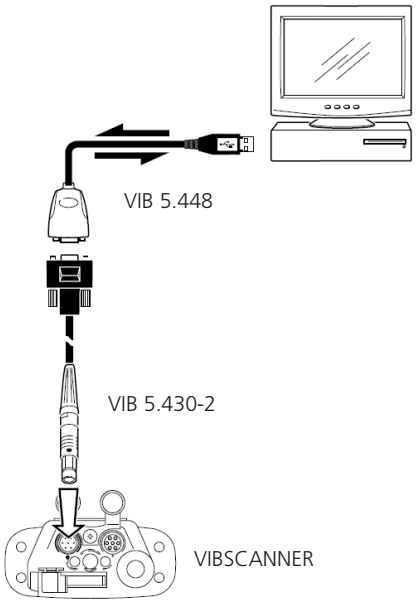
Cable lengths
VIB 5.430-2 approx. 2 m
VIB 5.448 approx. 0.2 m
VIB 8.619 approx. 2 m

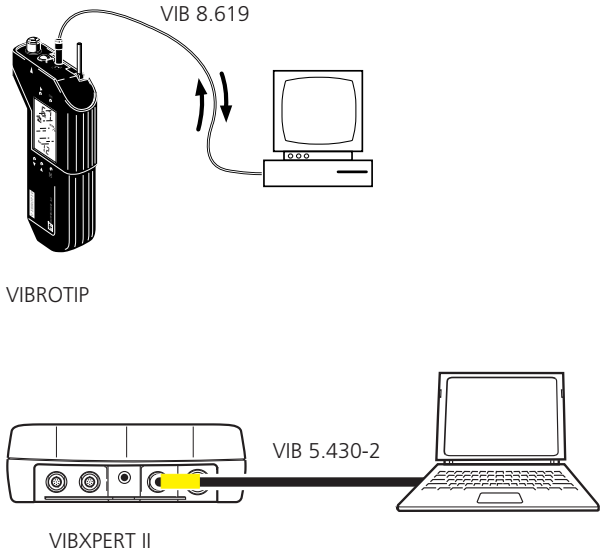
Note

These cables may not be used with VIBXPERT EX or VIBROTIP EX respectively!

Application examples

Data collector connected to PC (RS 232)





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VIB 8.619-USB : Serial to USB cable adapter for VIBROTIP EX

VIB 8.619-USB

Application

This cable adapter is used with the VIBROTIP EX data collector for data transfer to a PC via an USB port. It protects the data collector from damage caused by surges and may only be connected temporarily - i.e. not permanent - to the USB port of a standard computer. The maximum voltage U_m on the USB port must not be greater than 60 volts, even under fault conditions.

Cable length approx. 1.5 m

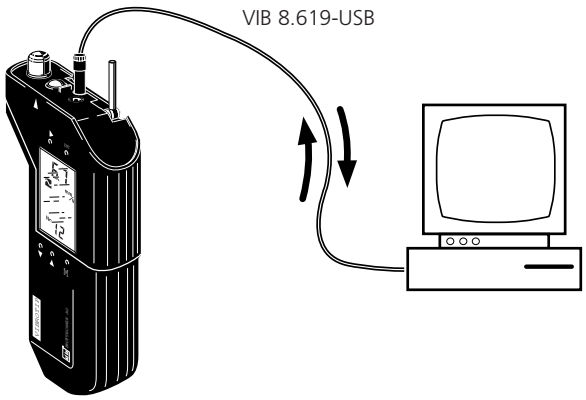
Note

This cable adapter may only be connected outside the hazardous area.

This cable adapter can also be used with VIBROTIP without intrinsic safety!

Technical data

PARAMETER		VIB 8.619-USB
Electrical	Connectors	USB plug / Binder plug 5p
	Supply	5 VDC, from PC USB port
General	Length	approx. 1.5 m
	Operating temperature	-20°C ... + 50°C
	Storage temperature	-30°C ... + 80°C
	Relative humidity	< 95%
	Protection class	IP 50

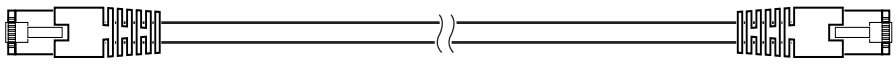


VIBROTIP EX

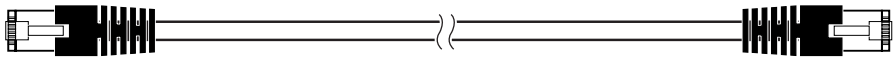
Network cables for Online-CMS (VIBRONET Signalmaster / VIBROWEB)

VIB 5.955-X :	Patch cable (VIBRONET Signalmaster / VIBROWEB)
VIB 5.957-2 :	Crossover ethernet cable (VIBRONET Signalmaster / VIBROWEB), 2 m
VIB 5.957-5 :	Crossover ethernet cable (VIBRONET Signalmaster / VIBROWEB), 5 m

X = 2,5,10.30 m



VIB 5.955-2



VIB 5.957-2

Application

The Patch cable VIB 5.955-X is used to connect the CMS basic unit (VIBRONET Signalmaster / VIBROWEB) to a data network - either directly or via a switch.

The crossover ethernet cable VIB 5.957-X is used to connect the CMS basic unit directly to a PC.

Abbreviation

CMS: Condition-Monitoring-System

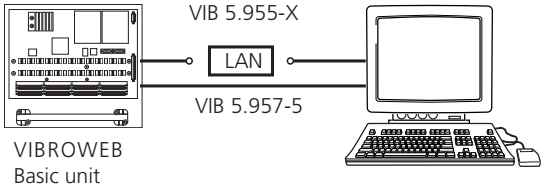
Technical data

PARAMETER		VIB 5.955-X	VIB 5.957-2 / -5
Electrical	Charact. impedance	100 Ohm ±15%	
	Loop resistance	188 Ohm	
	Conductor resistance	< 94 Ohm/km	
Layout and Environment	Wire	0.52 mm Cu blk AWG24	
	Wire insulation	PE, color coding acc. to IEC 708	
	Formation	4 pairs, twisted	
	Shielding	Aluminium compound foil	
	Earth lead	0.5 mm Cu vzn	
	Sheath	FR-PVC, gray (flame resistant)	FR-LS0H, yellow (flame resistant, low-smoke, halogen-free)
	External diameter	6.3 mm	
	Model	TP patch cable, shielded Category 5 - 100 Mbit/s, Allocation acc. to EIA/TIA 568, 4 x 2 x AWG 24/7 RJ 45 connector w/ sprayed on cable sleeve	S/FTP Crossover cable, double shielded Category 5 - 100 Mbit/s,Crossover allocation (100BASE-T4)*, 4 x 2 x AWG 26/7 RJ 45-'HIROSE' connector, yellow
	Temperature range	-5°C ... +50°C (laying)	-30°C ... +70°C (operation)
	Cable length	2, 5, 10 or 30 meters	2 meters or 5 meters

*Crossover pin allocation (100BASE-T4):
1 - 3
2 - 6
3 - 1
4 - 7
5 - 8
6 - 2
7 - 4
8 - 5

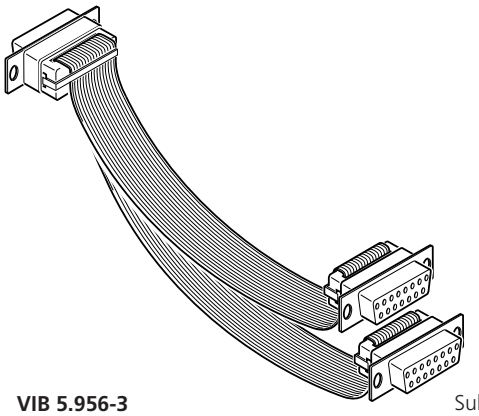
Application example

VIBROWEB connected to network / PC

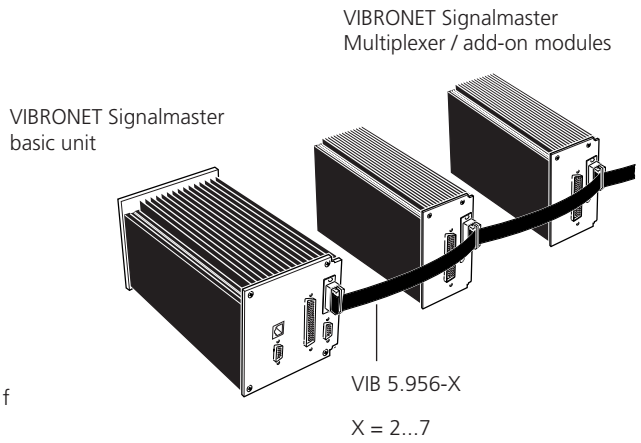


C 1 2 3 4 5 6 A

VIB 5.956-X : System bus cable for VIBRONET Signalmaster with X connectors



VIB 5.956-3 Sub-D 15p, f



Application

Connection of the 16-channel multiplexers and add-on modules to the VIBRONET Signalmaster for the transmission of analog and digital measurement and control signals.

Description

The system bus cable is a 15-wire ribbon cable. At a distance of about 0.5 meter 15-pole Sub-D connectors are attached for connecting system components.

Note

The expansion of an existing system bus requires a system bus cable with the relevant number of connectors.

Pin allocation: System bus cable

PIN		Function
VIB 5.956-X	1	Hi3
	2	Lo3
	3	AG
	4	MUX-CLK
	5	12 V
	6	PG
	7	SDM1
	8	SDM2
	9	SDM3
	10	AG
	11	AG
	12	Hi1
	13	Lo1
	14	Hi2
	15	Lo2

12VDC/15mA	12V DC current supply
PG	Reference zero for the 12V supply
AG	Analog reference zero
MUX-CLK	Impulse for channel switching
SDM	A-wire for triggering
HiLo	Analog signal line

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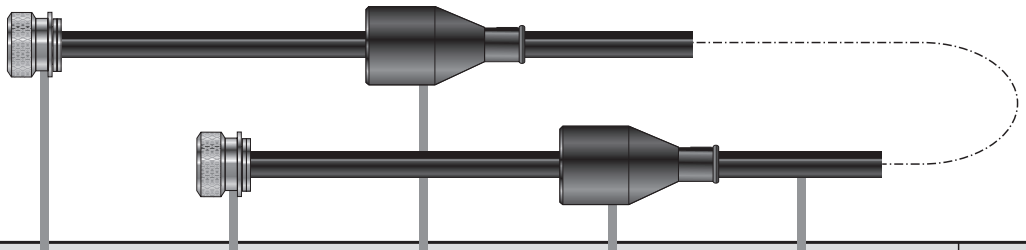
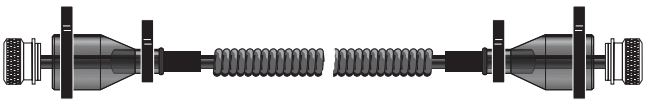
Ordering information for customized sensor cables

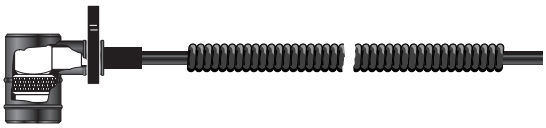


VIB 3..	[Plug 1]	[Plug 2]	[Gland 1]	[Gland 2]	[Cable type]	L (S)
Order number	0 no plug	0 no plug	0 no gland	0 no gland	0 coax, VIB 90009 flame retardant	This suffix indicates the cable length in meters.
	1 TNC, straight VIB 93022	1 TNC, straight VIB 93022	1 Gland for TNC VIB 10473	1 Gland for TNC VIB 10473	1 coax, VIB 90008 halogen free	Add the letter 'S' for cable with protective sheath. (See below examples)
	2 QLA	2 QLA	2 Anti-kink sleeve, silicon free VIB 81018	2 Anti-kink sleeve, silicon free VIB 81018	2 coax, VIB 90093 oil-resis., <125°C	
	3 TNC, angled VIB 93077	3 TNC, angled VIB 93077	3 Silicone dust cap VIB 6.700	3 Silicone dust cap VIB 6.700	3 coax, VIB 90007 oil-resis., < 150°C	
	4 BNC, straight VIB 93060	4 BNC, straight VIB 93060	4 Vitone dust cap VIB 6.701	4 Vitone dust cap VIB 6.701	4 coax, VIB 90006 blue, EX area	
	5 BNC, angled VIB 91009	5 BNC, angled VIB 91009	5 Silicone dust cap angled VIB 6.710	5 Silicone dust cap angled VIB 6.710	5 triax, VIB 90080 flame retardant	
	6 Chassis, BNC VIB 93090	6 Chassis, BNC VIB 93090	6 Vitone dust cap angled VIB 6.711	6 Vitone dust cap angled VIB 6.711	6 -	
	7 Chassis, TNC VIB 91000	7 Chassis, TNC VIB 91000	7 Shrink tubing	7 Shrink tubing	7 Twisted-pair, PUR VIB 90061	
	8 TNC socket, VIB 93047	8 TNC socket, VIB 93047	8 -	8 -	8 4-way cable	
	9 MIL plug, 2p VIB 94010	9 MIL plug, 2p VIB 94010	9 -	9 -	9 -	

Ordering examples



VIB 311342-10S :
Coaxial cable with Rayolin cable sheath (oil- and heat-resistant up to 125°C) and with protective sheath 10 meters long;
2x TNC plug, straight, with vitone and silicone glands



VIB 303061-20S:
Coaxial cable (RG 58) with protective sheath, length 20m; 1x TNC plug, angled, with vitone gland; one cable end open

Acceptable combinations of cable types, plugs and glands

Designation, see above

CABLE TYPE	Plug	Gland
0, 1	all	all
2, 3*, 4	0, 1, 3, 6, 7	all
5*	0, 1, 3	3, 4, 5, 6, 7
6*, 7*	9	0
8*	0	0

* Protective sheath VIB 6.730 is not allowed

VIB 2.200 : Balancing and Vibration model (Rotor kit)

Application

Simulation of actual machines for measurements in tests, demonstrations and training courses. The balancing and vibration model is suitable for the following applications:

- Balancing
- Diagnosis of machine faults
- Measurement of rolling bearing damage
- Investigations on Laval rotors

With a variable RPM and different degrees of stiffness of rotor and fundament, almost all the situations that occur on actual machines can be simulated. Individual components (bearings, rotor disk, rotor length) can be easily and rapidly replaced as a result of the simple construction of the model.

Scope of supply

- Balancing machine with safety shutter, completly assembled
- Bonded adapter to M5 thread, flat, 6 pcs.
- Bonded adapter to M8, 2 pcs.
- VIBCODE long-stem stud, 2x
- Manual for frequency converter on CD
- Instructions for use
- Safety notes
- 1 set with 4 defective bearings (outer raceway, inner raceway, roll body)
- Tool set (fork wrench 3x, hook wrench, allen wrench for hex screws 2x, hammer, thickness gage, allen key)

Balancing

- 1-plane and 2-plane balancing
- Replacing the rotor disk in less than 1 minute
- Overhung rotor
- Rotor in intermediate bearing
- Combination of overhung and intermediate mounted rotor
- Width and narrow impellers
- Rigid and soft foundation, adjustable
- Rigid and soft rotor, adjustable

Machine faults and rolling bearing damage:

- Rotor resonance
- Rolling bearing race damage adjustable
- Rolling bearings can be exchanged
- Bearing clearance adjustable
- Static or dynamic unbalance
- Misalignment
- Loose foundation
- Foundation defect
- Foundation resonance, instability
- All errors at variable RPM
- Start up and coast down analysis

Technical data

PARAMETER		VIB 2.200
Electrical	Power supply	SIEMENS frequency inverter 50/60 Hz, 230 VAC (115 VAC with adapter)
	RPM range	0 ... 3000 min.$^{-1}$ (60 Hz: 3600 min.$^{-1}$)
	Drive	3~ DMA type 0.55 kW at 2775 min.$^{-1}$ /50 Hz 2.4 A at 230 VAC / 0.55 kW
Model	Machine	Rolling bearings in plummer block
	Motor, bearing mounting	M10/ wrench size 17
	Clearance to bearing center	460mm (short), 660 mm (long)
	Weight	25 kg (incl. motor, converter, cable)
	Rotor mass	5 - 8 kg adjustable
	Intrinsic frequencies	Foundation: rigid / soft (adjustable < 6 Hz) Rotor: 75 Hz, rigid, short shaft 48 Hz, soft, long shaft
	Bearing condition measurement	Bearing load as on actual machines with shock pulse measurements up to a RPM of 120min.$^{-1}$
	Replacement time for rolling bearings	5 minutes

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Accelerometer performance characteristics (selection)

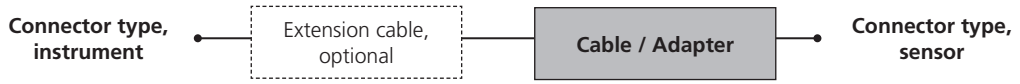
Accelerometer Order no.	Type	Sensitivity	Frequency range (±3dB)	Temperature range	Shock pulse bearing condition	IP class w/ cable	Intrinsic safety -> alternative
VIB 6.102 R	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+80°C	yes	IP 65	no -> VIB 6.102 DEX
VIB 6.102 DEX	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.107	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+100°C	no	IP 65	no -> VIB 6.107 DEX
VIB 6.107 DEX	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+80°C	no	IP 65	yes
VIB 6.122 R	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+100°C	yes	IP 65	no -> VIB 6.122 DEX
VIB 6.122 DEX	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.125 R	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+135°C	yes	IP 65	no -> VIB 6.125 IDEX
VIB 6.125 RIP	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+135°C	yes	IP 68[3]	no -> VIB 6.125 IDEX
VIB 6.125 IDEX	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+80°C	yes	IP 68[3]	yes
VIB 6.127	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+100°C	no	IP 65	no -> VIB 6.127 DEX
VIB 6.127 DEX	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+80°C	no	IP 65	yes
VIB 6.129 IP	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+135°C	no	IP 68[3]	no -> VIB 6.129 IDEX
VIB 6.129 IDEX	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+80°C	no	IP 68[3]	yes
VIB 6.132 R	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+100°C	yes	IP 65	no -> VIB 6.132 DEX
VIB 6.132 DEX	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.135 R	CLD	1.0 µA/ms^{-2}	1 Hz ... 20 kHz	-30°C...+135°C	yes	IP 65	no -> VIB 6.125 IDEX
VIB 6.137	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+100°C	no	IP 65	no -> VIB 6.137 DEX
VIB 6.137 DEX	CLD	5.35 µA/ms^{-2}	0.3 Hz ...10 kHz	-30°C...+80°C	no	IP 65	yes
VIB 6.142 R	CLD	1.0 µA/ms^{-2}	0.3 Hz ...20 kHz	-30°C...+100°C	yes	IP 65	no -> VIB 6.142 DEX
VIB 6.142 DEX	CLD	1.0 µA/ms^{-2}	0.3 Hz ...20 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.147	CLD	5.35 µA/ms^{-2}	0.3 Hz ...12 kHz	-30°C...+100°C	no	IP 65	no -> VIB 6.147 DEX
VIB 6.147 DEX	CLD	5.35 µA/ms^{-2}	0.3 Hz ...12 kHz	-30°C...+80°C	no	IP 65	yes
VIB 6.152 DEX	CLD	0.1 µA/ms^{-2}	1 Hz ...20 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.162 VD	CLD	1.0 µA/ms^{-2}	2 Hz...2 kHz (±10%)	-30°C...+80°C[2]	no	IP 65	yes
VIB 6.172	ICP	100 mV/g	0.1 Hz ...10 kHz	-40°C...+120°C	no	IP 67	no -> VIB 6.172 XICP
VIB 6.172 XICP	ICP	100 mV/g	0.1 Hz ...10 kHz	-40°C...+80°C	no	IP 67	yes
VIB 6.195	CLD	5.35 µA/ms^{-2}	0.1 Hz ...10 kHz	-30°C...+80°C	no	IP 67	no -> VIB 6.172 XICP
VIB 6.202-3 /-6	CLD	1.0 µA/ms^{-2}	2 Hz ...10 kHz	-30°C...+80°C	yes	IP 65	no -> VIB 6.202..XD
VIB 6.203-3 /-6	CLD	1.0 µA/ms^{-2}	2 Hz ...10 kHz	-30°C...+120°C	yes	IP 65	no -> VIB 6.203..XD
VIB 6.202..XD	CLD	1.0 µA/ms^{-2}	2 Hz ...10 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.203..XD	CLD	1.0 µA/ms^{-2}	2 Hz ...10 kHz	-30°C...+80°C	yes	IP 65	yes
VIB 6.215	V / ICP	20 mV/ms^{-2} (Z)	1 Hz ... 10 kHz (Z)	-40°C...+85°C	no	IP 65	no -> none
VIB 6.216	V / ICP	20 mV/ms^{-2} (Z)	0.1 Hz ... 10 kHz (Z)	-40°C...+85°C	no	IP 65	no -> none
VIB 6.655	ICP	100 mV/g	0.6 Hz ...2 kHz[1]	-54°C...+121°C	no	--	no -> none
VIB 8.606 VS	CLD	1.0 µA/ms^{-2}	10 Hz...10 kHz (±10%)	-10°C...+80°C	yes	IP 65	no -> VIB 8.606 XVS
VIB 8.606 XVS	CLD	1.0 µA/ms^{-2}	10 Hz...10 kHz (±10%)	-10°C...+80°C	yes	IP 65	yes
VIB 8.660 VS	CLD	1.0 µA/ms^{-2}	1.5 Hz ...20 kHz	-10°C...+70°C	yes	IP 65	no -> VIB 8.660 XVS
VIB 8.660 XVS	CLD	1.0 µA/ms^{-2}	1.5 Hz ...20 kHz	-10°C...+70°C	yes	IP 65	yes
VIB 8.666 VS	CLD	1.0 µA/ms^{-2}	1 Hz...10 kHz (±5%)	-30°C...+100°C	yes	IP 65	no -> none

Abbreviations
ICP: Integrated Circuit Piezoelectric (Sensor w/ voltage output)
CLD: Current Line Drive (Sensor w/ current output)

[1] w/ magnetic holder VIB 3.420
[2] outside hazardous area: -30°C...+100°C
[3] w/ VIB 6.760 or VIB 6.761

Portable instruments connection overview

Legend

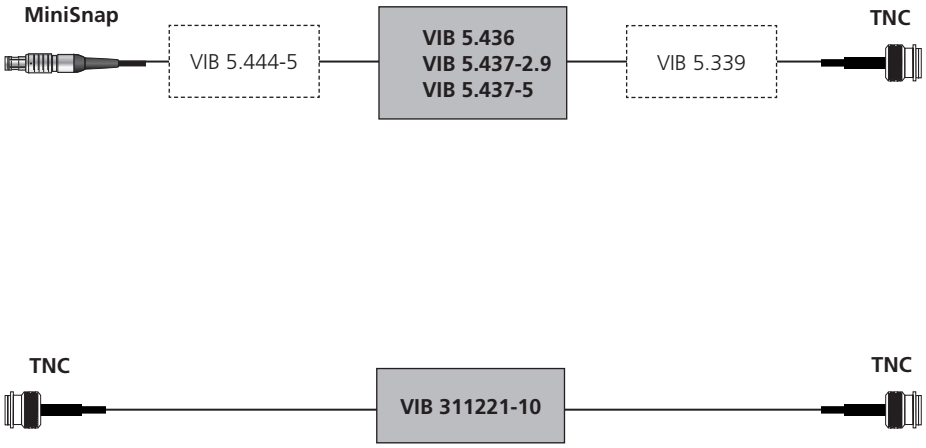


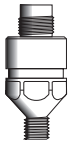
Note
For cable lengths greater than 2.9 meters, the EMC immunity of the signal path can be adversely affected.

Current LineDrive Accelerometers (CLD)

VIBSCANNER
VIBXPERT II
VIBXPERT I

VIBGUARD portable

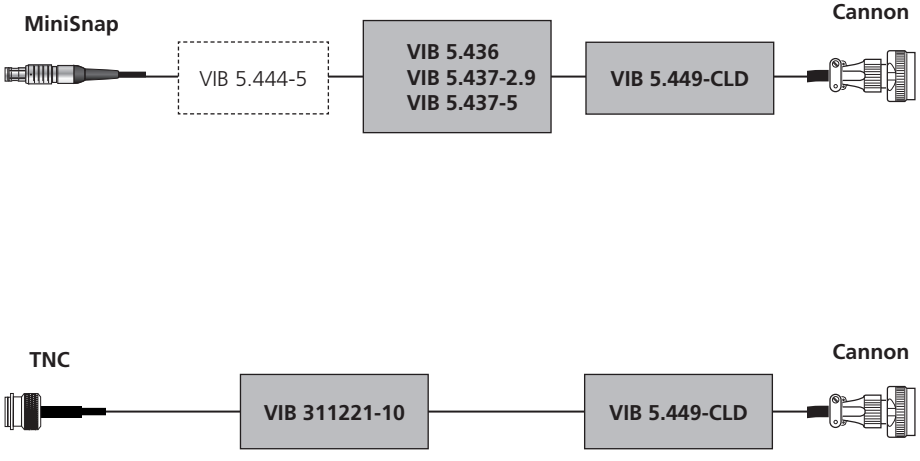


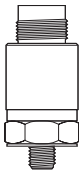


CLD-type
VIB 6.10x
VIB 6.12x
VIB 6.13x
VIB 6.14x

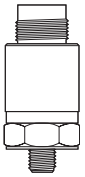
VIBSCANNER
VIBXPERT II
VIBXPERT I

VIBGUARD portable





CLD-type
VIB 6.195



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ICP-type Accelerometers

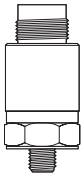
VIBSCANNER
VIBXPERT II
VIBXPERT I

VIBGUARD
portable

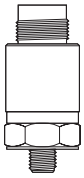
MiniSnap → VIB 5.444-5 → **VIB 5.422** → VIB 5.345-6 → **Cannon**

VIB 5.444-5 → **VIB 5.438-0.5** → **VIB 93055** → **VIB 5.449-ICP** → **Cannon**

TNC → **VIB 311221-10** → **VIB 5.449-ICP** → **Cannon**



ICP-type
VIB 6.172



Microphone, ICP-type

VIBXPERT II
VIBXPERT I

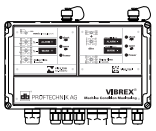
MiniSnap → VIB 5.444-5 → **VIB 5.438-0.5** → **VIB 344221-10** → **BNC**

Microphone
VIB 5.933-MIC

VIBREX (mV)

VIBXPERT II
VIBXPERT I

Mini-Snap → VIB 5.444-5 → **VIB 5.433** → **VIB 93055** → **TNC**

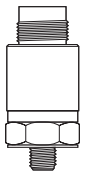


VIBREX
VIB 5.7xx
(Kleinspannung)

VIBROTECTOR

VIBXPERT II
VIBXPERT I

MiniSnap — **VIB 5.342** — **VIB 5.341** — **VIB 5.344** — **Cannon**

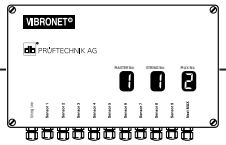


VIBROTECTOR
VIB 5.731
VIB 5.736

Data collection via multiplexer

VIBXPERT II

MiniSnap — **VIB 5.346** — **VIB 5.346-MUX**



Multiplexer
VIB 8.306

TNC

CLD-type (9x)
VIB 6.10x
VIB 6.12x
VIB 6.13x

Machine protection system

VIBXPERT II
VIBXPERT I

MiniSnap — **VIB 5.433** — **VIB 344221-1** — **BNC**

2x analog — **VIB 5.433** — **VIB 344221-1** — **BNC**

1x digital
(Keyphasor) — **VIB 5.432-2.9** — **VIB 5.332** — **VIB 344221-1** — **BNC**

Machine protection system
e.g. Bently-Nevada

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Information about installing sensors and cables in hazardous areas

Conditions for safe operation of the signal evaluation units and the transducers

0. Responsibility for the installation of intrinsic safe systems:

- Each intrinsic safe company has an authorized EX protection representative who is solely aware which conditions, norms, etc. must be observed in his company. Only the specialist personnel he authorizes are allowed to work on the system.
- The following installation recommendations must be authorized by the EX protection representative.

1. Limiting device for transducers with Current LineDrive output: VIB 3.550

- The limiting device must be installed in a connection box or housing (min. IP 20).
- The limiting device must be at least 50 mm away from non-intrinsically safe circuits.
- The potential equalization connector must be applied first and should not be connected through.
- The signal evaluation unit must be earthed with the hazardous areas equipotential bonding system (PA) at the position of the limiting device.
- The only grounded point of the intrinsically safe circuits within the hazardous area is the limiting device.
- The limiting device should have potential equalization with the machines to be monitored.

2. Transducers

- Electrically non-insulated transducers may only be used in the area of the machine with electrically non-insulated and PA-contacted fittings.
- The insulated sensors with Current Line- Drive output and the intermediate connectors must be reliably protected against physical contact. To do this, they must be fitted with the IP68 option or with caps beyond the insulated position and fixed with plastic clamps.

3. Wiring to the hazardous areas equipotential bonding system (PA)

- For reasons of noise suppression, a line resistance of <120 mOhm is recommended (e.g. Cu cable, AWG 16 (1.5 mm²) / 10 meters long).
- The following safety regulations must be implemented: personnel, goods, with respect to lightning, explosion, electricity and, if necessary, any other regulations of the respective customers, trade union, insurers, country, confederation, etc. must be taken into account.
- The respective installation regulations regarding the safety of the type of connection must also be followed here. Consequently, this must be performed by an authorized specialist there who is insured to do so.

4. Cables

Coaxial and triaxial cables are used for LineDrive sensors with TNC connectors (VIB 6.1..EX) or with sealed cable connection (VIB 6.2...XD, coaxial only) respectively.
Twisted-pair cables are used for sensors with 2-pin ML connectors*.

The outer shield of the triax cable must ...

- ... be connected to the hazardous areas equipotential bonding system at the limiting device (PA).
- ... not be connected to the sensor, but reliably insulated instead (under shrinkage tube or insulating cap, 5mm gap to the plug.)
- ... not be connected to the metal housing at the sensor intermediate connector (VIB 6.770/13), but reliably insulated instead or the metal housing should be insulated by shrinkage tube.
- ... be insulated by shrinkage tube or insulating cap when using cable interconnections.

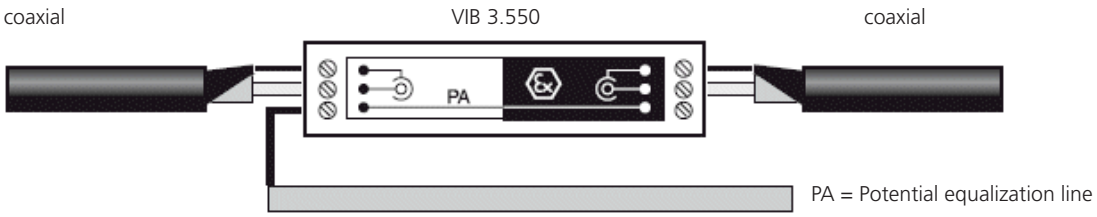
5. The national safety regulations must be followed.

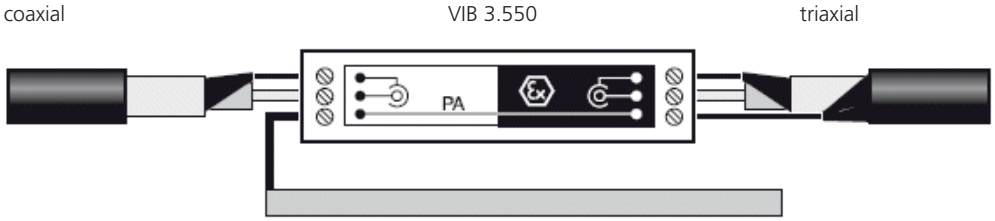
6. The conformity certifications must be observed.

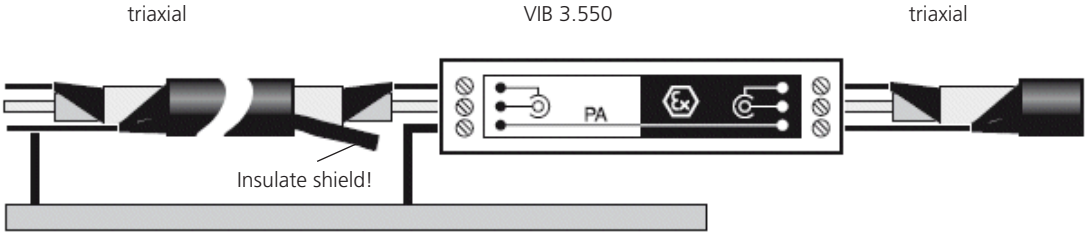
7. The EX protection instructions in the various catalog pages must be adhered to.

* VIBROTECTOR EX, VIB 5.73x EX
ICP-type accelerometer EX, VIB 6.172XICP

Connection examples:
Limiting device (VIB 3.550) for Linedrive accelerometers







Evaluation unit side:
Connect outer shield to PA!

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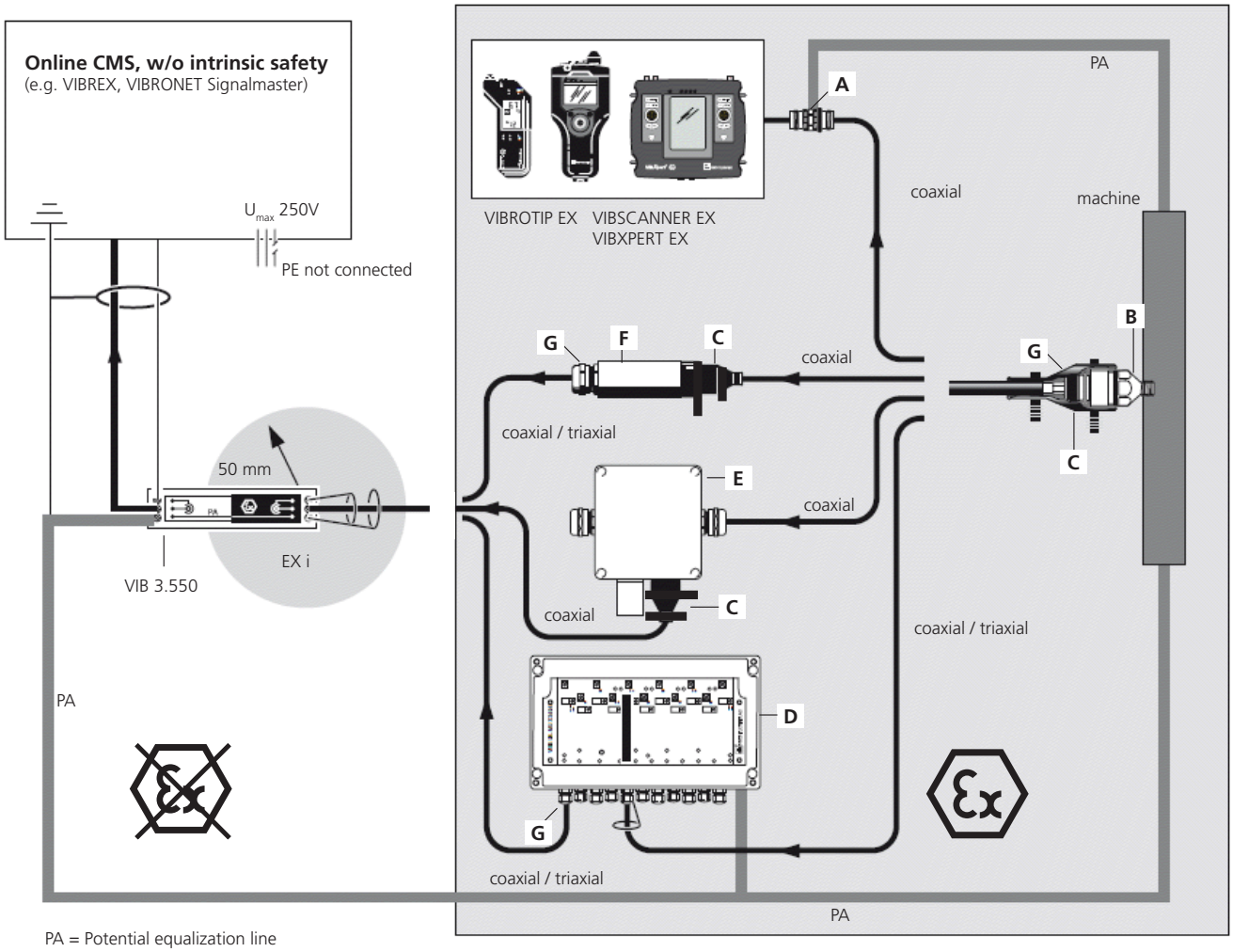
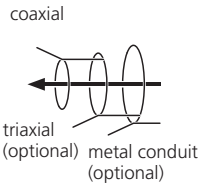
Installation examples in the hazardous area:



PA = Potential equalization line

A	B	C	D	E	F	G
VIB 93036 S	VIB 6.1x2 DEX x= 0. 2, 3, 4	VIB 6.700 + VIB 6.720 + VIB 6.721 + VIB 6.722	VIB 8.306 EX Field multiplexer, mounted insulated	VIB 6.775/9	VIB 6.770/9 mounted insulated	Outer shield is not connected
VIB 93036 F	VIB 6.1x7 DEX x= 0. 2, 3, 4	VIB 6.760	VIB 8.314 EX Vibration module	VIB 6.775/13	VIB 6.770/13 mounted insulated	
VIB 91000		VIB 6.761				



The patented Tandem-Piezo accelerometer

PRÜFTECHNIK accelerometers provide measurable success

PRÜFTECHNIKs patented Tandem-Piezo accelerometers set new standards in terms of reliability, versatility, mounting ease and economy.

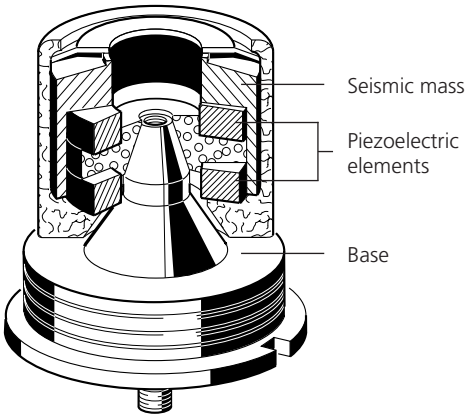
The unique design practically eliminates temperature shock and base strain effects; it also handles condition evaluation of turbo machinery and gearboxes, anti-friction bearings and pump cavitation - all with the same transducer, thanks to a wide linear range and a defined shock pulse resonance characteristic at 36 kHz. The built-in current line drive amplifier ensures immunity to ground looping and extremely low signal loss, even over long transmission distances, as well as compatibility with the entire PRÜFTECHNIK line of mobile data collectors, FFT analyzers and online or remote condition monitoring equipment.

And the Tandem-Piezo transducer family not only costs far less than shear designs, but cuts installation expense as well: economical standard TNC fittings mount quickly and are available with flexible caps (silicone-free, if desired) for extra protection. Laser-welded and laser-marked, the hermetically sealed housings withstand even the harshest industrial surroundings. Angled plugs require only 45 mm mounting clearance height; besides standard stud mounting, a revolutionary bonded arrangement is ideal for mounting on thin-profile bearing housings. A self-threading pin holds the accelerometer in place using only a small pilot hole while the bonding compound sets to a final hardness comparable to that of steel.

Tandem-Piezo® accelerometer at a glance

- Low base strain sensitivity
- Low sensitivity to temperature transients
- Built-in 'Linedrive' amplifier offers unsurpassed immunity against cable noise and ground loops
- Low transverse sensitivity
- High shock resistance
- Integrated resonance suppression filters avoids amplifier overloading
- Factory burn-in for high long-term stability
- Intrinsically safe version also available

Tandem-Piezo® accelerometer design



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Advantages of current linedrive accelerometers

The long cables used in permanent monitoring systems must stand up to considerable electrical and mechanical interference. With traditional sensors the signals barely get through the network, being drowned out by the noise and interference.

The solution: use either expensive high-quality cable carefully laid away from interference sources or a 'line drive' system, which consists of a tiny electronic amplifier built into each sensor which boosts the vibration signal. The latter offers several advantages:

- Low sensitivity to mechanical and electrical interference (cable noise, electromagnetic sources, ground looping)
- Very long low-cost cables possible with very little signal loss
- Cable positioning during installation is not as critical
- Power supply current carried along the very same coaxial cable carrying the vibration signal (power comes from a source built into the receiver instrument).

There are two types of line drive systems on the market, providing either voltage output or current output. PRÜFTECHNIK systems use the latter, since it is a superior system with more sophisticated electronics and the following significant advantages:

- Much lower high frequency loss in very long cables even over 1000 meters.
- Much lower susceptibility to induced noise and ground-loop noise, also obviating in most cases the need for insulated sensors.

High frequency loss in long cables

The PRÜFTECHNIK current line driver system has much lower high frequency loss in long cables than voltage output systems.

This is because the instrument has a significantly lower input impedance, and since the maximum frequency is inversely proportional to input impedance, the maximum frequency is greatly extended.

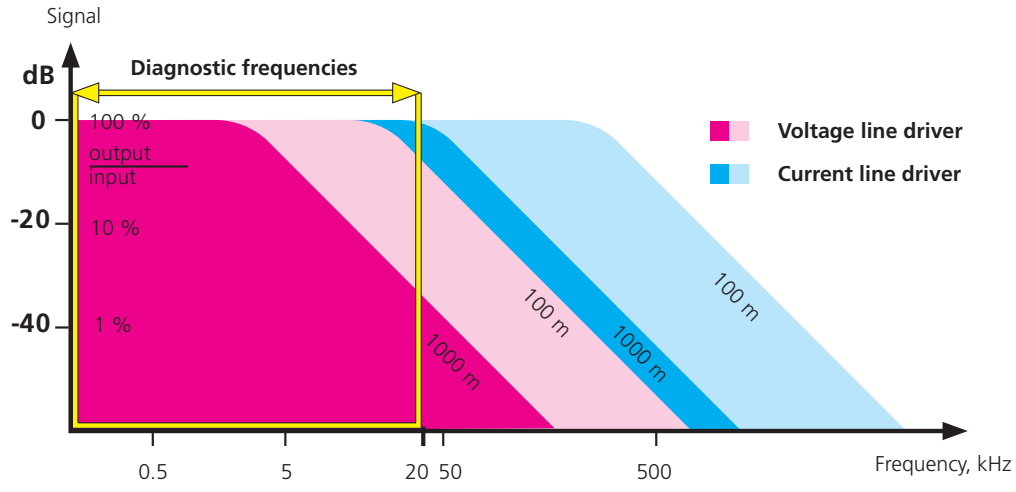
Ground looping and noise

The PRÜFTECHNIK current line driver system has much lower susceptibility to induced noise and ground-loop noise than voltage output systems.

This is because the very low instrument input impedance minimizes influence from electromagnetic fields. The instrument virtually 'shorts' the cable conductors.

This has the added advantage that, with the exception of frequency rectifier-governed motors and high-voltage motors, costly insulated sensors can be avoided, eliminating the problem of insulator capacitance.

Frequency range and signal loss depend on cable length



PRÜFTECHNIK worldwide

Belgium / Netherlands
PRUFTECHNIK N.V.
Bothastraat 9
B-2140 Antwerpen
www.pruftechnik.be
Tel.: +32 (0) 3 272 56 36
Fax: +32 (0) 3 272 40 74
info@pruftechnik.be

Brain Park II
Lichtenauerlaan 102-120
NL-3062 ME Rotterdam
Tel.: +31 (0)10 204 59 37
Fax: +31 (0)10 204 55 55

Brazil
PRUFTECHNIK Ltda.
R. Gaspar Soares, 178 - Santana
02041-020 São Paulo - SP
www.pruftechnik.com.br
Tels.: +55 11 3571-7710
Celular: +55 11 9944-1409
info@pruftechnikbrasil.com.br

Canada
PRUFTECHNIK Maintenance Technology Service, Inc.
4406, rue Louis-B.-Mayer
Laval, QC H7P 0G1
www.pruftechnik.ca
Tel: +1 (514) 738-6565
Fax: +1 (514) 227-5455
info@pruftechnik.ca

China
PRUFTECHNIK
Trading (Shanghai) Co., Ltd
21F, Room 03,04 Tower A,
Hongkou Plaza
No. 388 West Jiangwan Road,
Hongkou District
Shanghai 200083, P.R. China
Tel.: +86 21 65075118
Fax: +86 21 65075115

France
PRUFTECHNIK S.A.R.L.
Parc d'Activités Lavoisier
Rue Laplace
F - 59494 Petite Forêt
www.pruftechnik.fr
Tel.: +33 (0) 3 27 25 52 33
Fax: +33 (0) 3 27 25 55 69
info@pruftechnik.fr

Germany
PRÜFTECHNIK AG
Oskar-Messterstr. 19-21
85737 Ismaning
www.pruftechnik.com
Tel.: +49 (89) 996160
Fax: +49 (89) 99616300
info@pruftechnik.com

Great Britain / Ireland
PRUFTECHNIK LTD.
Plant Lane Business Park,
Burntwood Staffordshire
WS7 3GN
www.pruftechnik.co.uk
Tel.: +44 (0) 1543 448350
Fax: +44 (0) 1543 275472
info@pruftechnik.co.uk

Gulf region
PRUFTECHNIK Middle East FZE
Dubai Airport Free Zone
P.O. Box 293872
United Arab Emirates
Phone: +971 4 214 6386
Fax: +971 4 214 6390
info@pruftechnik.com

Italy
PRUFTECHNIK S.r.l.
Via De Nicola, 12/E
I-20090 Cesano Boscone (MI)
www.pruftechnik.it
Tel.: +39 02 4516141
Fax: +39 02 45161430
info@pruftechnik.it

India
PRUFTECHNIK AIMIL Technical Services Private Limited
A-8 Mohan cooperative industrial estate, Mathura road ,
Phone: 91-265-3058800/03
Dehli - 110044, India

Indonesia
PRUFTECHNIK S.E.A PTE LTD
Indonesia Representative Office
Jl. H. R. Rasuna Said, Blok X-5, Kav 1-2, Menara Karya, Lantai 28
Jakarta 12950 Indonesia

Japan
PRUFTECHNIK K.K.
Hoshikawa Sanchoume Building
3-3-29 Hoshikawa,Hodogaya-ku,
Yokohama-city
Kanagawa 240-0006
www.pruftechnik.jp
Tel: +81 45 444 8812
Fax: +81 45 444 8813

Poland
PRUFTECHNIK WIBREM sp. z o.o.
ul. Sulowska 43
51-180 Wroclaw, Polska
www.pruftechnik.com.pl
Tel.: +48 71 326 57 00
Fax: +48 71 326 57 10
info@pruftechnik.com.pl

Russia
OOO PRÜFTECHNIK
Prospekt Stachek 48
Office 505
198097 Saint Petersburg
www.pruftechnik.ru
Tel.: +7 812 313 00 85
info@pruftechnik.ru

South East Asia
PRUFTECHNIK S.E.A. Pte. Ltd.
61 Alexandra Terrace
#05-03 Harbour Link Complex
Singapore 119936
www.pruftechnik.com.sg
Tel.: +65 6382 0662
Fax: +65 6382 0776
office@pruftechnik.com.sg

Spain
PRUFTECHNIK, S.L.
Calle Frederic Mompou, 4b, 4°, 4
08960 St. Just Desvern (Barcelona)
www.pruftechnik.es
Tel.: +34 934 802 700
Fax: +34 934 802 705
contacto@pruftechnik.es

Thailand
PRUFTECHNIK S.E.A PTE. Ltd.
Thailand Representative Office
Vanissa Building, Room 10B
29 Soi Chidlom, Ploenchit Road
Lumpini, Patumwan
Bangkok 10330, Thailand
Tel: +66 2 655-2989
Fax: +66 2 655-0900
eMail: office@pruftechnik.com.sg

Turkey
PRÜFTECHNIK Proaktif Bakım Teknolojileri ve Hizmetleri San. ve Tic. Ltd. Şti.
Barbaros mh. Çigdem Sokak No:1
Ağaoğlu My Office Kat 4/18
34746 Ataşehir İstanbul / Türkiye
Tel: +90 216 250 22 44
Fax: +90 216 250 55 56

U.S.A.
PRUFTECHNIK Service, Inc.
22 West Church Street
Blackwood, NJ 08012
www.pruftechnik.com
Tel.: +1 (856) 401-3095
Fax: +1 (856) 401-1484
info@pruftechnik-service.com

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PRÜFTECHNIK Service & Diagnostic Center

PRÜFTECHNIK develops and produces not only top-class condition monitoring systems, but also offers its customers professional services and practically oriented seminars in the field of condition based maintenance.

The PRÜFTECHNIK Service & Diagnostic Center handles the coordination and execution of tasks.

Mobile measurement and diagnostic service

- Measurements for acceptance tests
- Balancing and alignment services on special machines
- Mobile vibration diagnosis measurements
- Special mobile measurement such as noise and strain analyses
- Inspection services including videoscopy and thermographic examinations

In-house engineering and training

- Implementation of Condition Monitoring programs, including reference measurements
- Consultation and assistance in introducing a Condition Monitoring program
- Customized in-house training courses for machine operators and service providers

Temporary installations & telediagnosis service

- Temporary online monitoring of machines and systems
- Remote monitoring of machines and systems
- Load collective determination and automatic overload monitoring
- Regular vibration diagnosis service with results in the form of reports or on the Internet (OMNITREND Web)

Consulting and engineering

- Development of Condition Monitoring strategies for machine operators and manufacturers
- Machine failure and damage analyses
- Machine condition assessment by independent surveyors
- Working load determination and simulation to optimize existing drive systems
- FMEA of mechanical drives (root cause analysis)

Index by order number

PRÜFTECHNIK
Condition Monitoring
Oskar-Messterstr. 19-21
85737 Ismaning, Germany
www.pruftechnik.com
Tel. +49 89 99616-0
Fax +49 89 99616-300
eMail: info@pruftechnik.com

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