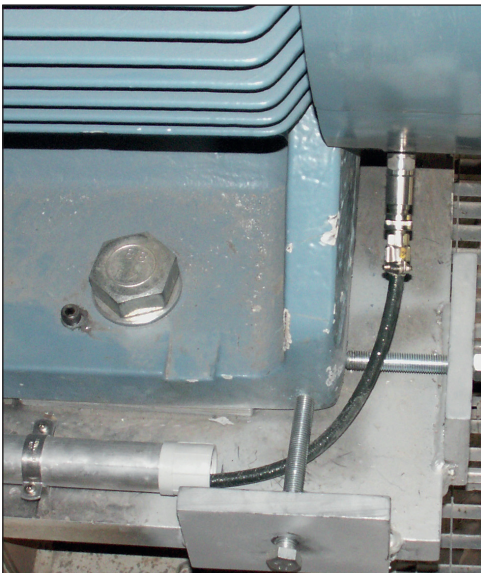


**Accelerometer (100mV/g)**  
VIB 6.172, VIB 6.210

**Installation and Operation**



Accelerometers of the VIB 6.172 and VIB 6.210 series are used for the measurement of absolute casing vibrations on machinery with rotating components. Due to the very low limit frequency, the accelerometers are particularly suitable for very slowly rotating components ( $n \geq 6$  rpm) such as the main bearings of a wind turbine. The accelerometers have a voltage output according to IEPE standard\*.

\*IEPE = Integrated Electronics Piezo Electric.  
More common than „IEPE“ is the manufacturer designation „ICP®“, which is property of PCB Piezotronics Inc.

## Safety Information

- Read these operating instructions carefully and store them.
- Observe the operating instructions of the connected devices.
- Read and observe the safety information in these operating instructions!
- Only use the accelerometer as intended and for the permitted purpose of application.
- Use original accessories only.
- Replace defective accelerometers and cables.
- Installation by qualified personnel only.
- Comply with the applicable safety regulations when performing installation work on running machines.
- Comply with the applicable safety regulations when laying cables.
- Observe the technical data and the allowed operating conditions. In case of doubt, consult with PRUFTECHNIK.
- The accelerometer is in compliance with European Directive 2004/108/EC. The complete Declaration of Conformity is available at [www.pruftechnik.com](http://www.pruftechnik.com).

## Repair and Maintenance

The operation of the accelerometer is maintenance-free. A repair is not possible.

## Disposal

Dispose of the accelerometer after use in accordance with applicable national regulations.

## Mounting

The frequency response and dynamic range of an accelerometer can be greatly influenced by the installation. Poor coupling to the measurement location can adversely affect the signal and restrict the frequency range. In principle, the accelerometer needs a non-positive, resonance-free and rigid fastening to the measurement location, especially for measurements with high frequencies.

The most secure and stable coupling is provided by a screwed mounting, for which a M8 threaded pin is attached to the accelerometer base by default. For both accelerometer series, depending on the requirements on site, various mounting adapters are available as an accessory.

### Mounting adapter for VIB 6.172 series

- Screw adapter M8-90°, VIB 3.437 ( $h^* = 4$ )
- Screw adapter M5-flat, VIB 3.439 ( $h^* = 1$ )
- Bonded adapter, VIB 3.433 ( $h^* = 8$ )
- Magnetic holder, VIB 3.423 ( $h^* = 10$ )

### Mounting adapter for VIB 6.210 series

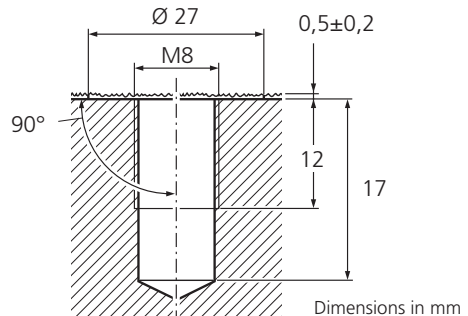
- Bonded adapter M8-90°, VIB 3.431 ( $h^* = 21$ )
- \* h: Installation height in mm, only adapter

## Mounting the accelerometer / screw adapter

Tools required:

- Hand-held drill
  - Drill bits with depth gauge (4.2 mm / 6.8 mm)
  - Thread tap (M8/M5)
  - 90°-countersink (for VIB 3.437)
  - Torque wrench, SW22
  - Compressed air for cleaning out the hole
- Drill the mounting hole and cut the thread.

### Thread hole for accelerometer



- Clean the area around the mounting hole and roughen it with abrasive paper (type 220).
- Clean the contact surfaces of the accelerometer / adapter and of the machine with solvent.
- Allow the contact surfaces to dry and then apply a thin film of screw paste (LOCTITE 243) to improve signal transmission.
- Screw in the adapter and tighten with a wrench



Adapter: 10 to 20 Nm

- Screw in the accelerometer by hand (3 to 7 Nm).

### Notes

Excessive torque can damage the threads on the accelerometer or machine part. Too little torque can allow the accelerometer to work loose and cause measurement errors!

If the accelerometer is affixed to non-grounded machine components (e.g. belt-driven fan), the accelerometer must be grounded to prevent static charges.

## Mounting the bonded adapter

Tools required:

- Hand-held drill
- Drill bits with depth gauge (3.5 mm)
- File
- Compressed air for cleaning out the hole
- Two-component adhesive (WEICON HB 300,..)

### Note

The machine must be switched off during installation. Afterwards, it must not be switched on for at least 24 hours to prevent mechanical vibrations during the hardening process.

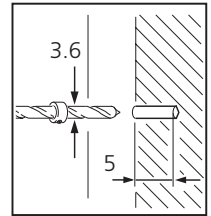
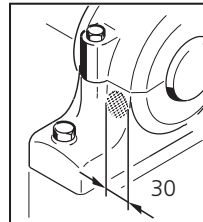
- Select bonding position:  
Leave enough space around the adapter in order to apply the bonding compound.
- Flattening and roughening:  
Sand down any paint on the mounting surface to bare metal ( $\varnothing > 30$  mm).  
Level out the mounting surface if necessary.

Roughen the mounting surface with a file (filing a few grooves in a diamond pattern provides greater adhesion.)

Optional, and only if drilling at the mounting location is possible:

- Bore hole for centering pin.  
– Drill depth approx. 5 mm, Diameter 3.6 mm.

If drilling is not possible, the centering pin on the accelerometer base can be removed.



- Clean location and mix bonding compound:  
Clean mounting surface and bonding socket with a residue-free degreasant and a clean cloth. Then allow both metal surfaces to dry completely.

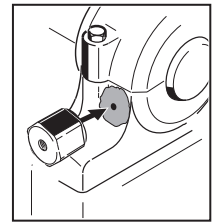
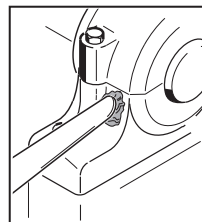
- Mix bonding compound for use.

- Apply bonding compound:

Apply a thin layer of bonding compound evenly with a wooden spatula (approx. 1 mm thick) to the base of the adapter and the mounting surface.

- Mount adapter:

Press the adapter gently against the mounting surface and turn it a little to evenly distribute the bonding compound. Do not remove excess bonding compound. Additional bonding compound can be applied at the bonding location for higher stability.



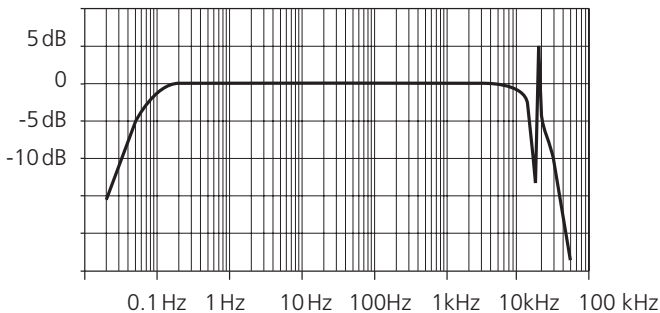
### Note

An adhesive tape may be used to hold the adapter in place during the first hour of hardening.

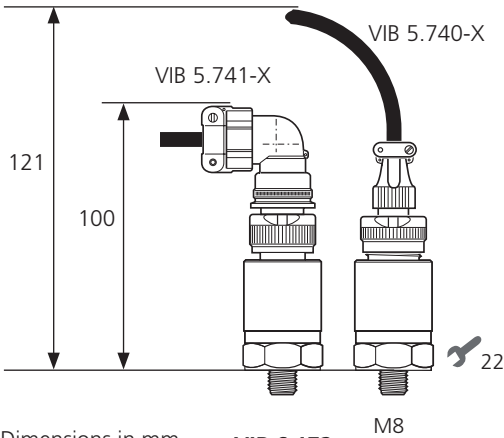
# Technical Data

PARAMETER		VIB 6.172	VIB 6.210
Measurement	Signaling system	Voltage output according to IEPE standard	
	Transmission factor $\pm 4\%$	100 mV/g (ref.: 159 Hz; 25 °C)	
	Frequency range $\pm 3\text{dB}$	0.1 Hz ... 10 kHz	
	Resonant frequency	17 kHz; > 10 dB damped	15 kHz; > 10 dB damped
	Linearity range	< 70 g (r.m.s.) $\pm 1\%$	
	Temperature range	-40 °C ... +120 °C	-40 °C ... +85 °C
Electrical	Power requirements	2 - 10 mA / 18 - 30 V DC	
	Bias, DC output	12 V DC	
	Grounding	insulated from machine ground, internal shielding	
	Transverse sensitivity	< 5%	
	Temperature sensitivity	< 0.07% of measurement / K (ref.: 25°C)	
	Magnetic field sensitivity	< 0.1 g/T (at 50 Hz)	
	Base strain sensitivity	< 0.1 mg/ $\mu\text{m/m}$	
	Electrical noise (r.m.s)	< 1.0 mg (0.1 Hz - 10 kHz)	< 1.5 mg (0.1 Hz - 10 kHz)
	Output impedance	< 10 Ohm	< 100 Ohm
Mechanical	Case material	Stainless steel VA 1.4305	
	Environmental protection	IP 67 (with connected cable)	
	Shock limit	5000 g	
	Connector type	Cable connector, 2-pole (MIL-C-5015)	M12 Cable connector, 4-pole
	Weight	85 g	72 g
	Mounting on measuring point	M8 thread bolt (changeable); mounting adapter optional	M8 thread bolt (fixed); mounting adapter optional

## Frequency output - VIB 6.172 / VIB 6.210

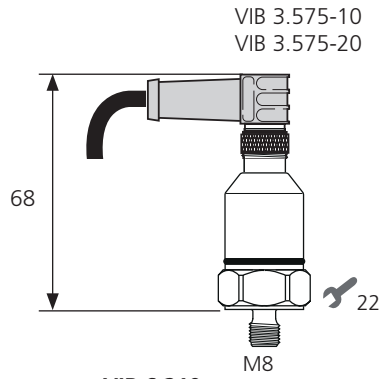


## Installation height



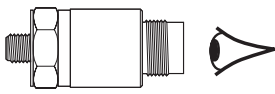
Dimensions in mm

**VIB 6.172**

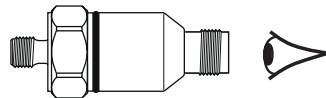
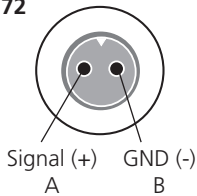


**VIB 6.210**

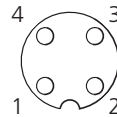
## Pin allocation, accelerometer



**VIB 6.172**



**VIB 6.210**



- 1 : Signal (+)
- 2 : nc
- 3 : GND (-)
- 4 : nc

## Electrical connection

Only electricians are allowed to install accelerometers. Comply with the national and international regulations for the installation of electrical equipment.

For the electrical connection to a **stationary** condition monitoring system (CMS), the following connection cables are suitable.

For accelerometer **VIB 6.172**:

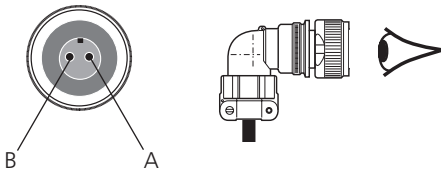
- Sensor cable with silicon coating and straight cable connector, X meters long, **VIB 5.740-X**
- Sensor cable with silicon coating and angled cable connector, X meters long, **VIB 5.741-X**
- Sensor cable with PUR coating and straight cable connector, stainless steel, X meters long, **VIB 5.746-L**
- Sensor cable with PUR coating and angled cable connector, X meters long, **VIB 5.745-L**

For accelerometer **VIB 6.210**:

- Sensor cable with angled cable connector, 10 meters long, **VIB 3.575-10**
- Sensor cable with angled cable connector, 20 meters long, **VIB 3.575-20**

Please find the technical data of the cables in the sensor and cable catalogue, which you can download from the PRUFTECHNIK website ([www.pruftechnik.com](http://www.pruftechnik.com)).

## Pin allocation, cable



CABLE	VIB 5.740-X VIB 5.741-X		VIB 5.745-L VIB 5.746-L	
	A	B	A	B
Pin	A	B	A	B
Color code	BN	BU	WT	BN

## Lay the cable

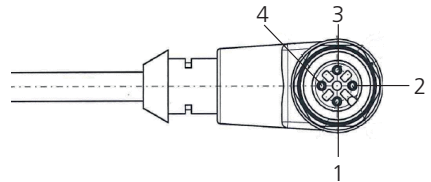
- Lay the cable in a cable conduit or a protective tube.
- Use Velcro strips or cable ties for mounting.
- Do not lay the connection cable parallel to power lines. Keep a minimum distance (> 1m).
- Lay a cable loop with sufficient excess cord at each connection or before each gland.
- Label the cable ends to avoid confusion.
- Observe the terminal assignments on the CMS (see CMS installation manual).

## Extend the cable

- Observe the maximum cable lengths (see CMS installation manual).
- Use shielded, 2-wire electrical cables for extension.
- Connect the cable ends in a junction box.
- Mount a metal junction box electrically insulated.

## EMC protection

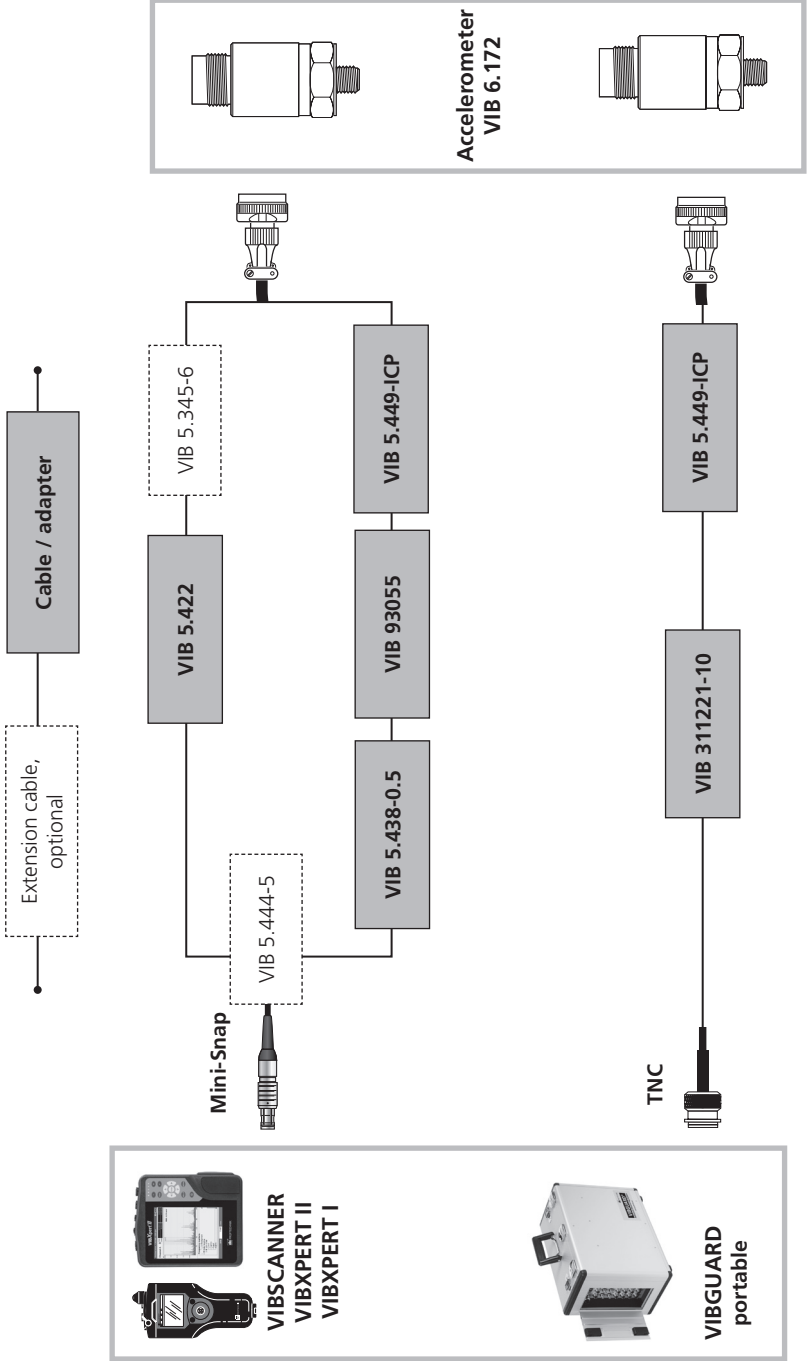
- Use double-shielded triaxial cables in environments exposed to strong electromagnetic radiation.
- Keep the accelerometer connection cable as short as possible.
- Connect the triaxial cable and the accelerometer connection cable in a junction box.
- Mount the junction box close to the accelerometer.



CABLE	VIB 3.575-10 / VIB 3.575-20			
	1	2	3	4
Pin	1	2	3	4
Color code	BN	BU	BK	Drain wire (shield)

BN: brown / BU: blue / WT: white / BK: black

# Connection options for accelerometer VIB 6.172 to portable measurement devices





VIB 9.833.EN  
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**Productive maintenance technology**