

Installation

The frequency behavior and dynamic range of the sensor can be heavily influenced by installation. Poor coupling with the measurement location dampens the signal and restricts the frequency range. As a general rule, the sensor requires firm, friction-locked, contact and resonance-free attachment to the measurement location. This particularly applies to measurements at high frequencies.

Basically, the following applies:

$$10 \times \text{Weight}_{\text{Sensor}} < \text{Weight}_{\text{object to be measured}}$$

The stabilized coupling can be achieved by **screw-ing** the sensor onto the measurement location. If screw mounting is not possible or inadmissible, the sensor can be attached with an **adhesive** adapter. A **magnetic** coupling saves time and expenditure on installation. It does however restrict the upper frequency range.

Screw mounting

Applies to sensors of series VIB 6.12x (M8 / 90°).

Required tools and resources

- Hand-held drill
- Drill bits (3.5 mm / 6.8 mm) with depth gage ring
- 90° countersink bit (VIB 8.694)
- M8 thread tap
- Torque wrench with 19 mm / 3/4" hex socket
- Compressed air for cleaning out the hole
- Solvent for degreasing
- Threadlocker (LOCTITE 243)

Select the point of installation

- The drilled hole must have direct connection to the bearing carrier if the sensor should measure shock pulse signals.
- Minimum distance between the drilled hole and protruding edges of the housing must be 35 mm (A). Allow adequate clearance to attach the wrench.

Note

Ensure that a hole can be drilled at the chosen location.

Drill threaded hole M8 / 90°

- Drill pilot hole: 3.5 mm / 15 mm deep (B).
- Bore out hole: 6.8 mm / 15 mm deep (C).
- Countersink hole: 90° / 3 mm deep (D).
- Blow out the hole.
- Grease thread tap.
- Tap thread: M8 / 12 mm deep (E).
- Blow out the hole.

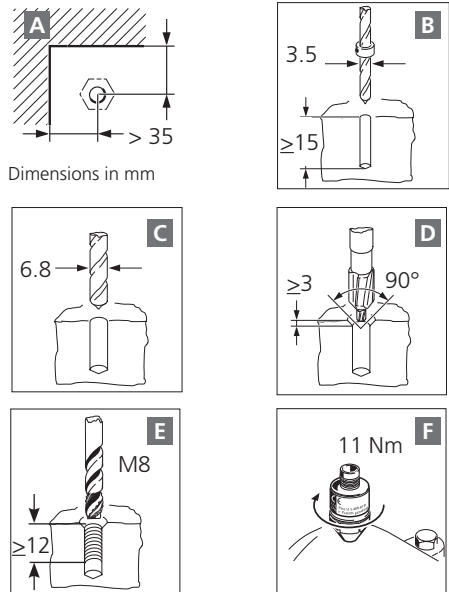
Mount sensor

- Clean the contact surfaces of the sensor and the machine with solvent.
- Allow contact surfaces to dry.
- Thinly apply LOCTITE 243 to improve signal transmission.
- Screw in the sensor and tighten with a torque wrench (11 Nm, F).
- Check the sensor for tight mechanical fit.

Notes

Excessive torque can damage the thread or the machine housing. Too little torque can allow the sensor to work loose. Incorrect torque always causes measurement errors!

The sensor must be protected against static charging if it is installed on a non-grounded machine (e.g. belt-driven fan).



Ex-zone

If the cable ends are connected **inside** the Ex-zone, the ignition protection type must not be impaired with due consideration being given to the intended use.

Prerequisites for safe operation of the signal analysis units and the sensors:

Responsibility

Each intrinsically 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:

Limiting device VIB 3.550

- The limiting device is to be installed in a switch cabinet or housing (at least IP 20).
- The intrinsic connections for the limiting device must be installed at a distance of at least 50 mm from non-intrinsically safe circuits.
- Potential equalization (PA) is to be applied first and must not be looped through.
- The signal analysis unit must be grounded with potential equalization at the location of the limiting device.
- The limiting device is the only grounded point of the intrinsically safe circuit in the Ex-zone.
- Potential equalization is to be established between the limiting device and monitored machines.

Sensor

- Sensors of the series VIB 6.1xy DEX are electrically insulated. Sensors and protective terminal housings must be reliably protected against physical contact. To do this, they must be fitted with the IP68 option or with protective caps beyond the insulated position and fixed with clamp rings

Wiring to potential equalization

- A line resistance of <math><120\text{ m}\Omega</math> is recommended for interference protection reasons ($=1.5\text{ mm}^2/10\text{ m}</math>).$
- Due consideration is to be given to personnel, goods, lightning, explosion protection - as well as other protection types where appropriate - for the respective customer, trade association, insurer, state, federal government etc.

- In this regard, the relevant implementation provisions are to be observed. This also applies to provisions relating to the safety of the connection type. In accordance with these provisions, wiring is only to be carried out by an approved specialist who is insured for such purposes.

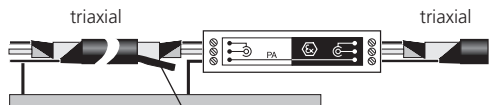
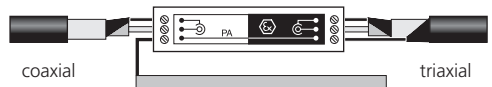
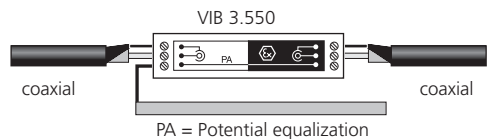
Connector cable

The following applies to **coaxial** cable:

- The shield is laid on the shield terminal of the limiting device. PA and the shield terminal are connected with each other.
- With regard to extension by means of a metallic protective terminal housing, the shield must not have any electrical contact with the housing. The shield is to be electrically insulated.
- The metallic protective terminal housing is to be protected against being touched by means of heat-shrink tubing or grounding with PA.

The following applies to **triaxial** extension cable:

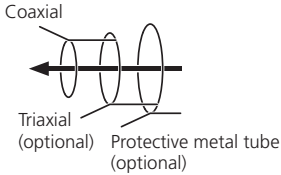
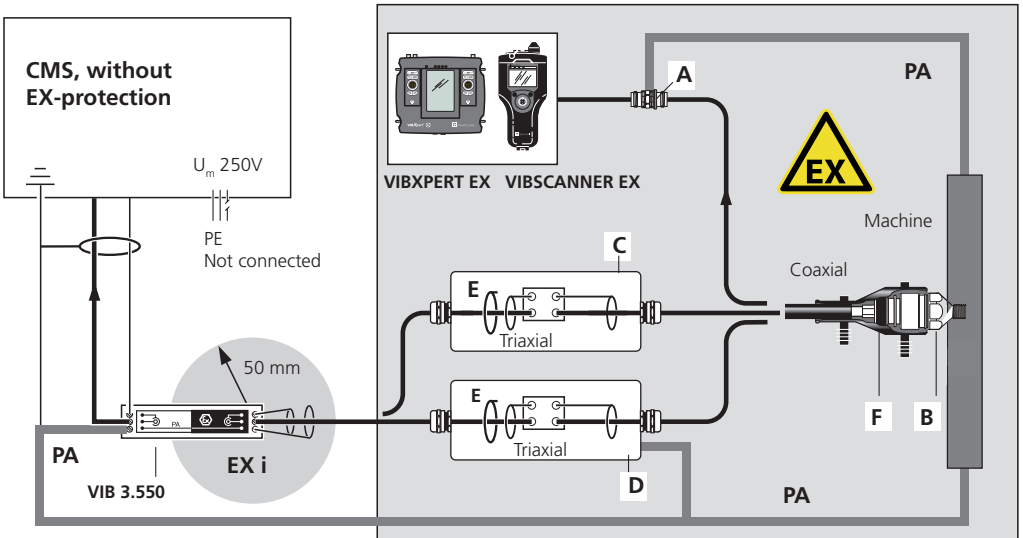
- The outer shield is laid on PA of the limiting device.
- With regard to extension by means of a metallic protective terminal housing, the outer shield is not laid on the protective terminal housing but is reliably insulated. Alternatively, the metallic housing can be insulated by means of heat-shrink tubing.
- With regard to outward-facing cable interfaces, the outer shield is insulated by means of heat-shrink tubing or with an insulating cap.



Device side:
Connect outer
shield with PA!

Insulate shield!

Connection examples for the Ex-zone



A: VIB 93036 S / VIB 93036 F / VIB 91000

B: VIB 6.12x DEX

C: Protective terminal housing, plastic

D: Protective terminal housing, metallic, mounted and insulated, housing at PA

E: Outer shield not laid

F: Protective cap w/ clamp ring or IP68 cable option (VIB 6.760 / 6.761)

PA = potential equalization

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