



Vibrating Rod

POINT LEVEL DETECTION For Inventory Control



Vibrating rods are a point level indicator used in powders and bulk solids. They are suitable for challenging materials and conditions such as changes in dielectric constant, humidity, temperature, and material densities down to 1.25 lb./cu. ft. BinMaster offers a variety of models with different types of sensing elements and approval options. Custom extensions, sediment detection, and models for tight spaces help address complex detection problems.

Vibrating Rod Features



Buildup Resistant Rods

A single rod design prevents bridging that can be associated with tuning fork designs. The sword-shaped blade encourages materials to flow by it easily and prevents buildup. The sensor is appropriate for a wide range of materials such as Styrofoam, sawdust, carbon black, chalk, and flour that can be hard to measure.



Sensitivity Settings

A switch on the sensor board inside the housing has three sensitivity settings. Position A is for high sensitivity and light or fluffy materials. B is for medium sensitivity. C is for low sensitivity and is used for materials that might tend to cling to the blade or heavy materials.



Hazardous Location Approvals

The standard VR-21, rigid extended VR-41, and flexible extended VR-51 are available with optional CSA hazardous location approvals for Class II, Groups E, F and G. The VR-90 and VF-95 can be manufactured for a variety of ATEX, FM, and CSA Class I environments.



Principle of Operation

Vibrating rods work by using a piezoelectric element to vibrate the blade. The blade vibrates when there is no material covering it. Once the blade is covered, the vibration is dampened.

This triggers an electronic circuit to force a relay switch that indicates a covered condition. Conversely, when material falls away from the blade, vibration resumes, and the relay indicates an uncovered condition.

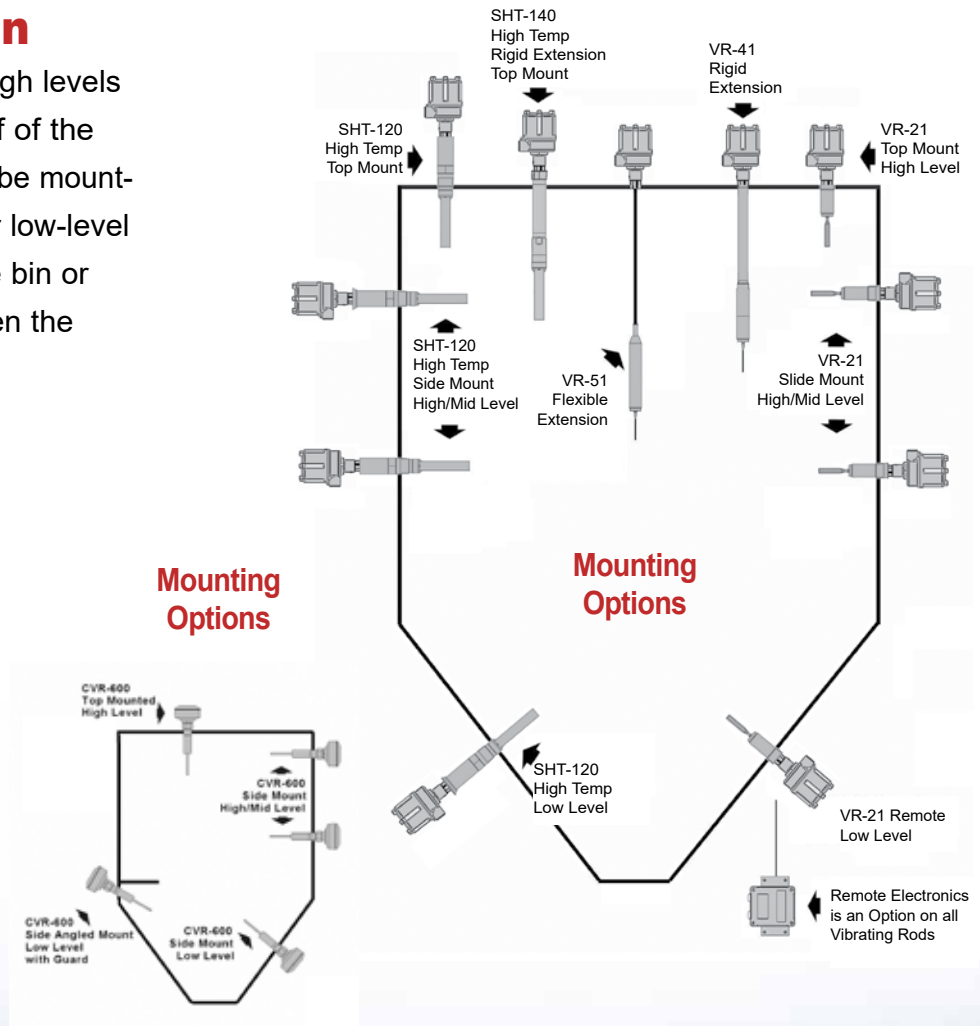
Installation Options

Mounting Location

Use vibrating rods to detect high levels by mounting them on the roof of the vessel. Alternatively, they can be mounted on the side for high, mid or low-level alerts. Used in the cone of the bin or a hopper, they can detect when the vessel is almost empty.

Mounting Plates

Vibrating rods can be mounted on flat or sloped bin roofs. Powder-coated carbon steel mounting plates are available in 0°, 5°, 10°, and 30° angles. For mounting in the cone or on the side of the bin a 0° mounting plate is used.



Custom Manufacturing

While the most common VR-21 vibrating rod is always in stock, BinMaster can also customize vibrating rods with extensions, for sediment detection, or with remote electronics for fast shipping. BinMaster has in-house machining and engineering to customize the sensor to your application.



A Rod for Every Reason



STANDARD 7-INCH

The VR-21 is the standard, in-stock model featuring a sword-shaped blade and a 7.37" insertion length. It is used for top and side mounted applications, plugged chute detection, and is also installed in the cone of the vessel for low level detection of powders and solids.

FLEXIBLE EXTENDED

The VR-51 features a steel-rope reinforced cable that can be extended from 19" to 19' down into the vessel. The flexible extension resists damage from falling material. This top-mounted model is custom built to customer specifications.



RIGID EXTENDED

The top-mounted VR-41 can be extended from 13" to 13'. It is used for level or plugged chute detection in heavy, medium, and light materials. It is sensitive enough to detect light fluffy materials with a dielectric as low as 1.25 lb./cu. ft.



QUICK CONNECTORS

Order a vibrating rod with a quick connect option that allows for simple removal and replacement of the sensor without the hassle of disconnecting and reconnecting wires.



Challenging Applications



SANITARY APPLICATIONS

The VR-31 is designed for food or pharmaceutical use. This model features a 2" sanitary stainless-steel fitting for use with a tri-clover clamp for clean-in-place applications. It can be customized with an optional stainless-steel extension in lengths from 13" to 13'.



REMOTE ELECTRONICS

A remote housing is available for the standard, sanitary, rigid extended, and flexible extended vibrating rod. This option can also be applied to high and super high temperature models to distance the electronics from a heat source. Remote electronics come with a mounting plate and 20' of cable.



HIGH TEMPERATURES

The SHT-120 and SHT-140 feature a diamond shaped vibrating rod probe suitable for high process temperatures up to 480°F (248°C). It has a raw cast aluminum housing and an insulation tube to protect the electronics from excessive heat. The SHT-120 has a standard length of 7.37", while the SHT-140 can be extended an additional 13" up to 13'.



COMPACT SPACES

For constrained spaces and small hoppers, the CVR-625 and CVR-600 offer simple installation. These miniature vibrating rods have an insertion length of about 6". The CVR-625 model offers standard 1-1/4" NPT mounting, while the CVR-600 has a 1" NPT mounting socket.

Specialty Models

ROUND ROD FOR COARSE SOLIDS

The VR-90 features a round, stainless steel rod suitable for coarse-grained solids and granules. It can also be used in food and pharmaceuticals when ordered with the stainless-steel

enclosure option. The VR-90 is a good option for vessels where the material is changed often.

It is available with hazardous location approvals should they be needed.



VIBRATING FORK

The VF-95 vibrating fork is for universal use in dry powders and fine-grained solids. This tuning fork style level detector is ideal for use in light solids or powders that cannot be sensed by a capacitance probe. It is often used in construction materials, animal feed ingredients, and powdered or flaked plastics. When ordered with a stainless-steel housing, it can also be used in foodstuffs and pharmaceuticals.



SEDIMENT DETECTION

The SED model is used to detect the level of settled sediment or solid materials in a tank of liquids. The sediment option is available for the standard-length VR-21 SED and VR-41 SED which can be extended from 13" up to 13'.