

Vibranivo®

Level limit switch

Information VN 4000

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Subject to technical change and price change.

All dimensions in mm.

All units of this pricelist are
CE-certificated.

Of course there are other unit variations than specified possible.
Please speak with our consulting technicians.

introduction

fields of application

The device is used for level monitoring in all types of containers and silos. It can be used with all powdery and granulated bulk materials with a density of min. 75g/l, that do not show a strong propensity to form crusts or deposits. A wide range of application is also found in foodstuff manufacturing.

For areas susceptible to dust explosion, the model Z10 of the device is available (approved by the BVS).

A selection of fields of application

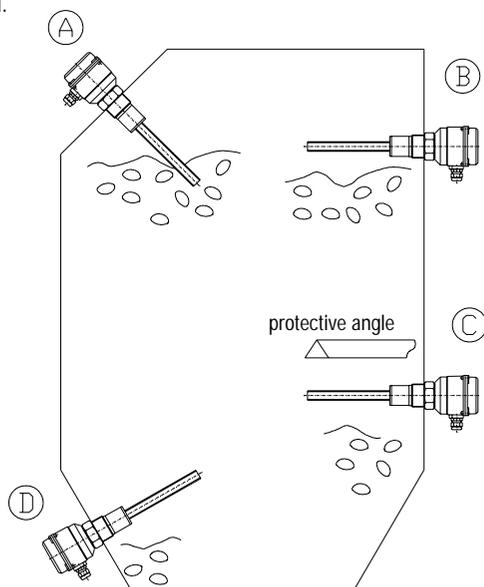
- industry of building materials (lime, styrofoam, moulding, sand, etc.)
- foodstuff industry (milk powder, flour, salt, etc.)
- plastics industry (plastics granules etc.)
- timber industry
- chemical industry
- mechanical engineering etc.

function

The piezo electrically stimulated oscillating probe vibrates at its mechanical frequency of resonance of 125 Hz. If the probe is covered by the bulk material, the damping thus generated is registered electronically and a corresponding signal output is actuated. The oscillation of the device ensures that it features certain self-cleaning properties.

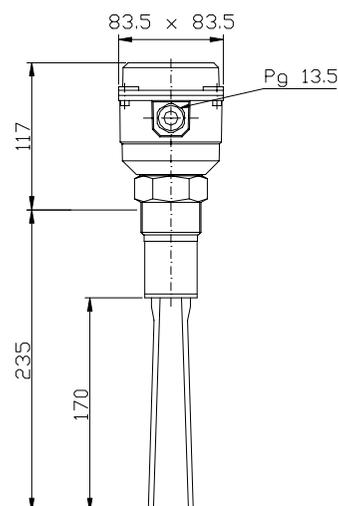
range of application

The VIBRANIVO oscillating probe is normally screwed into the lateral container wall so that it is level with the filling height to be registered and monitored.



technical data

dimensions



mechanical data

housing:	aluminium diecast housing RAL 5010 gentian blue; lid black
enclosure:	IP 65 to EN 60529
screwed piece:	
material:	stainless steel 1.4301
width across:	50mm
thread :	R 1 1/2" tapered DIN 2999 (any thread angle is possible)
oscillator:	
material:	stainless steel 1.4301 / 1.4581
overall weight:	approx. 1,6kg
options:	weather-protection cover

electrical data

mains voltage:	alternatively 19..253V 50-60Hz 19..60V DC (wide range) max. ripple: 7 V _{SS} at DC
	18V - 50V DC (three-wire) max. ripple: 7 V _{SS}

Vibranivo[®]

Level limit switch



Information VN 4000 technical data

installed load:	max. 1 VA (wide range) max.17 mA (DC three-wire)
connection terminal:	max. 2.5mm ²
screwed cable gland:	1 x M20x1.5
signal output:	floating relay output: max. AC 253V, 4A, 500W at cos Phi=1 max. DC 253V, 4A, 60W open collector PNP, NPN output: permanent load max. 0,4A short-circuit- and overload proof; turn-on voltage: max. 55 V (reverse protection)
switch status display:	by built-in LED
signal delay:	probe free -> covered approx. 1 sec. probe covered -> free approx. 1..2 sec.
safety operation: (FSL, FSH)	to be switched over for minimum/maximum security
measuring frequency:	approx. 125Hz
isolating:	mains voltage to signal output 3kV~
protection class:	I

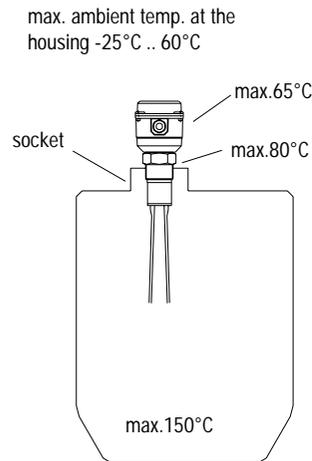
operating conditions

ambient temp. at the housing:	-25°C .. +60°C
internal temperature of the container:	-25°C .. +150°C see also right column
min. powderdensity:	approx. 75 g/l
features of bulk materials:	no strong propensity to cake or deposit max. grain size 10mm
max. oscillator load:	max. 600N laterally (on oscillating rods)
max. container pressure:	16 bar

Protective measures in case of high loading:
mounting of an protective angle above the probe

Mounting in container with 150°C:

Mounting at socket



The max. surface temperature of the housing is 65°C.
The max. surface temperature of the thread part at the housing is 80°C.

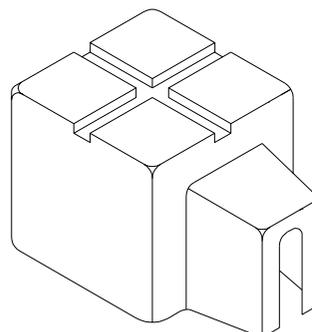
option

weather-protection-cover

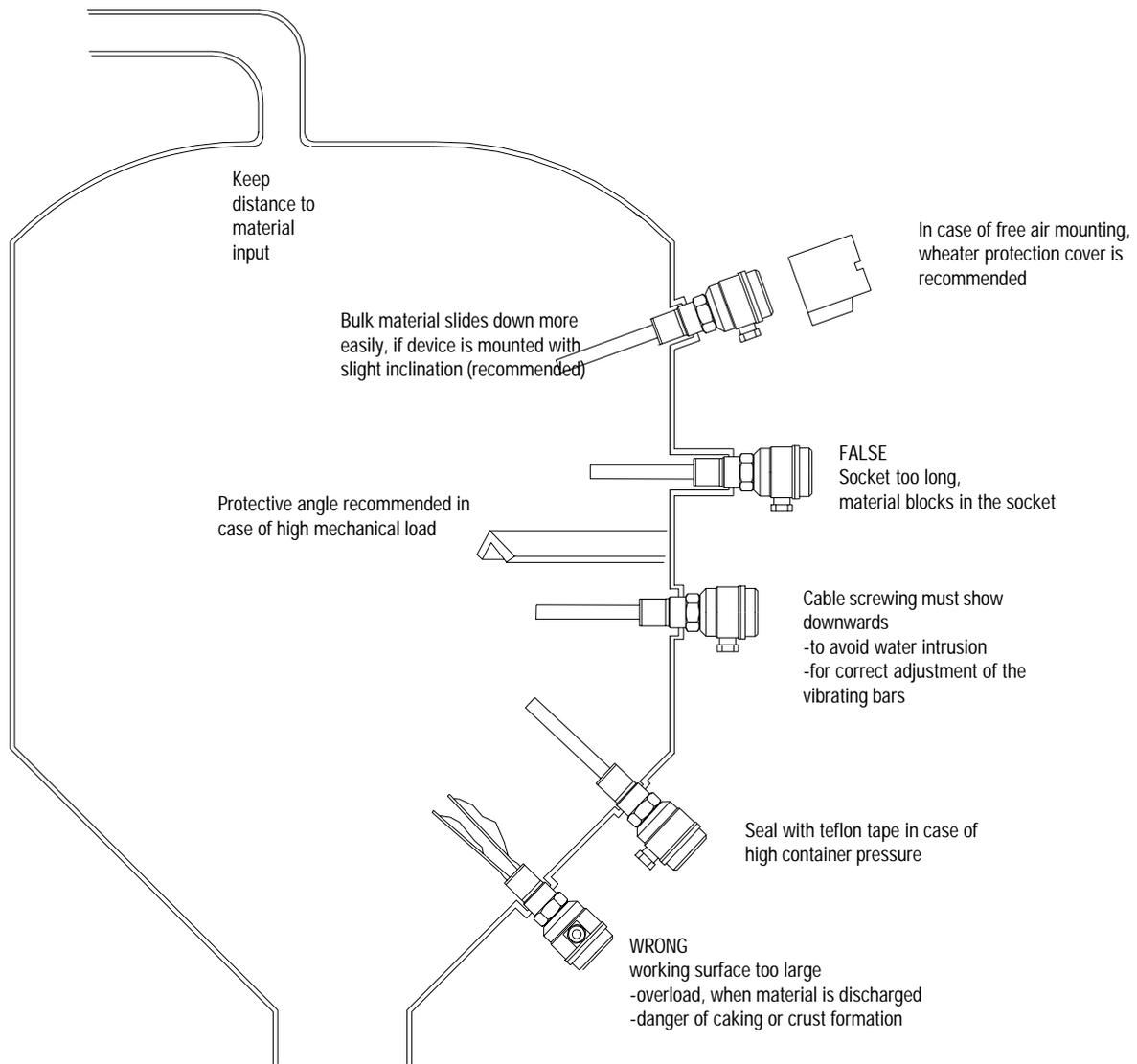
When the measuring device is used in the open, use of the weather-protection-cover is recommended. It protects the device from all atmospheric influences such as:

rain water
condensation of water
excessively high temperatures due to insolation
excessively low temperatures in winter

Material: PE
weathering and temperature stable



mounting



tips for the installation

switch point: heavy bulk material
-> cover of a few mm
light bulk material
-> cover of a few cm

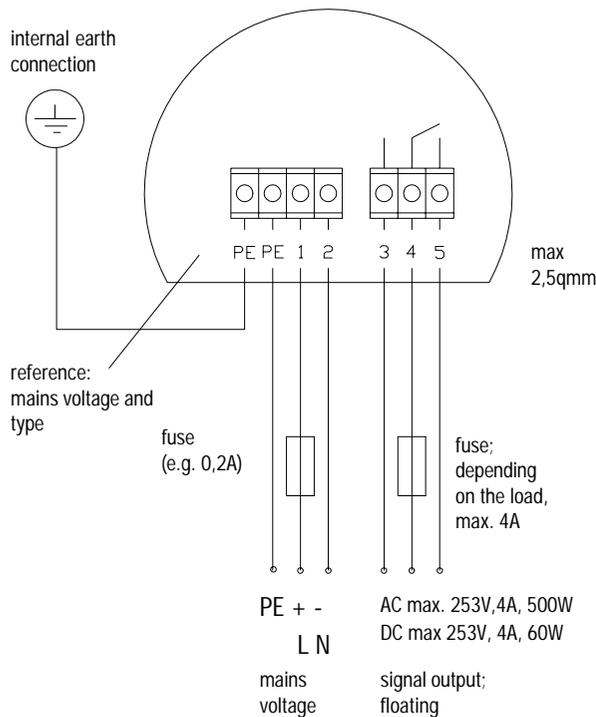
oscillating rods: do not bend, shorten or extend the oscillating rods since this will destroy the device

screwing the device in: use a 50mm open-end wrench
(do not turn the housing)

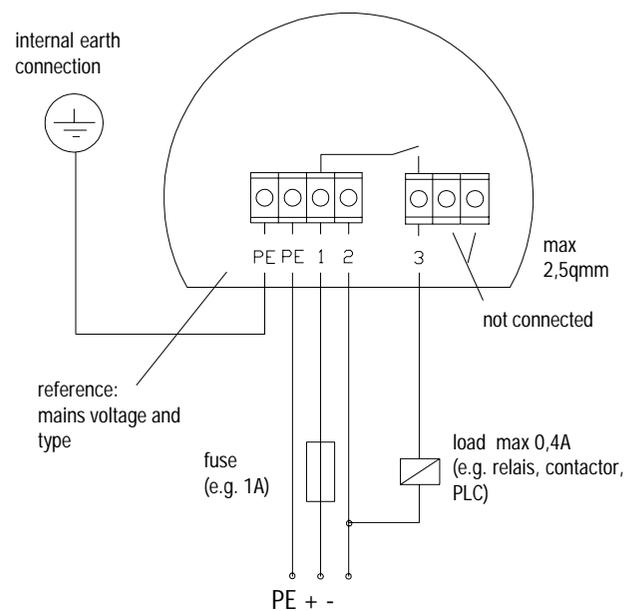
When the device is mounted in areas in which there is danger of dust explosion zone 10, the pertinent rules and regulations have to be adhered to!

Information VN 4000 electrical connection

19..253V 50-60Hz 19..60V DC (wide range)



18..50V DC PNP (3-wire)



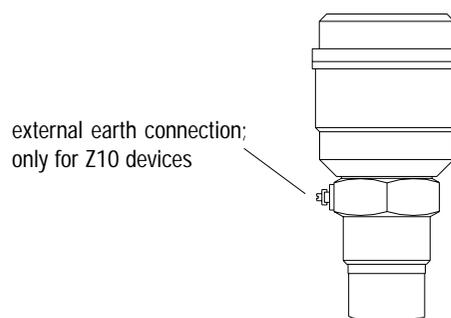
security items

For terminal connection of the device, the local regulations or VDE 0100 (Regulations of German electrotechnical Engineers) must be observed.

For terminal connection of the device in areas in which there is the danger of dust explosion zone 10, the pertinent local regulations for the installation and connection of electrical wires must be observed.

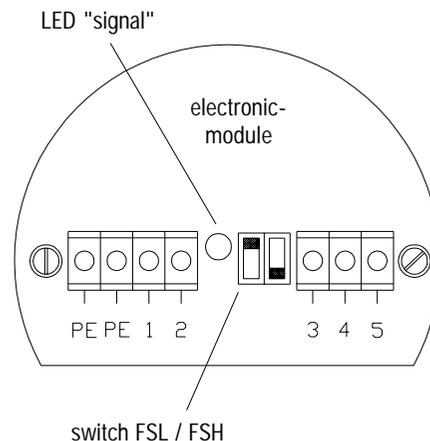
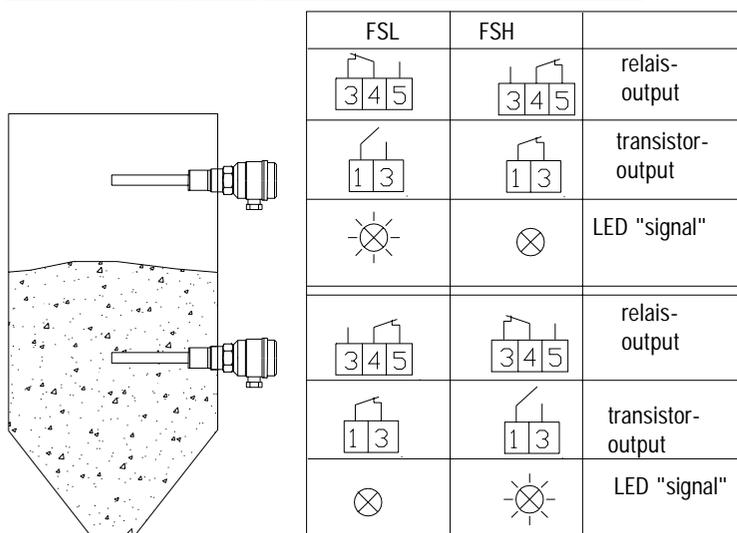
- Provide protection for relay contacts and output transistors to protect the device against spikes with inductive loads.
- Compare the mains voltage applied with the specifications given on the electronic module before switching the device on.
- Make sure that max. 8mm of the pigtails are bared (danger of contact with live parts).
- Make sure that the boots for protecting cable terminations are not longer than 8mm (danger of contact with live parts).
- Make sure that the screwed cable gland safely seals the cable and that it is tight (danger of water intrusion).

- A voltage-disconnecting switch must be provided near the device.
- In the case of inexpert handling or handling malpractice, the electric safety of the device cannot be guaranteed.
- In the case of a defect, the distribution voltage must auto-matically be cut off by a FI protective switch so as to protect the user of the device from indirect contact with dangerous electric tensions.



Information VN 4000
switching logic/ maintenance

switching logic



minimum / maximum security level

If the probe is used to indicate empty load
-> set to minimum security level FSL

Power failure or line break is regarded as "empty" signal
(protection against running dry)

If the probe is used to indicate full load
-> set to maximum security level FSH

Power failure or line break is regarded as "full" signal
(protection against overcharging)

maintenance

Normally, the device requires no maintenance. However, depending on the individual field of application, the following should be observed and inspected:

- mechanically damaged oscillating rods
- coarse cleaning of the oscillating rods

changing the electronic module

1. Open the housing lid, remove the pigtails from the device.
2. Disconnect internal wire for earth connection from terminal PE.
3. Unscrew two fastening screws of the electronic module.
4. Pull out electronic module.
5. Insert new electronic module (until it locks into place).
6. Fix internal wire for earth connection to terminal and screw down the fastening screws.
7. Connect the pigtails to the device.

