Vibrating Level Switch

CV660

Compact low cost vibrating level switch with single rod technology for dry granular solids with bulk densities of minimum 50 grams per litre

Purpose

The ***CV660*** is a vibration type level control device which is used for the detection of high-, mid- or low level in bins, silos and hoppers filled with all kinds of dry granular solids. The ***CV660*** is a low cost model of the successful CV600-series. The instrument is designed for power supply 24V-DC and offers a PNP / NPN transistor output.

How it works

The signal from the electronic circuit of the ***CV660*** excites the stainless steel rod of the probe to vibrate on its resonance frequency of approx. 460Hz. When material covers the rod of the probe the vibration stops. This is sensed by the electronic circuit, the output signal gets switched. When the rod becomes uncovered due to declining level, the vibration restarts and the output signal switches back.

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Advantages

- The vibration technique offers many unique advantages over alternative level sensing technologies:
  - no problems at material changes in the silo: the function does not depend on material characteristics, e.g. dielectricity
  - no readjustment required: unaffected by environmental changes e.g. temperature, pressure, humidity
  - unaffected by dust clouds and agitation
  - no maintenance required: the vibration has a self-cleaning effect
  - high durability: no moving parts, no wear-out

- reliable function due to unique patented single rod design
  - the ***CV660*** has only one single rod that comes in touch with the material to be detected; thus the typical bridging problem, where material builds a bridge from one rod to the other, well known at instruments with so called “tuning fork“ designs, is ruled out
  - material build-up on the container wall has no influence on the function of the ***CV660*** as only the tip of the vibrating blade is sensitive and not the base

- easy setup and wiring
  - electrical connection is made via DIN43650-plug with 4 connectors
  - no calibration required

- low cost but high quality
  - probe and enclosure in stainless steel
  - designed and manufactured at PTL in Germany according to DIN EN ISO9001:2015 and with the background of more than 35 years of experience in the field of level control.

CE-Conformity

The ***CV660*** meets the requirements of the following regulations:
- EC-EMC-directive 2004/108/EC
- EC-Low Voltage Directive 2006/95/EC

Specifications

Probe:	stainless steel 1.4301 / AISI 304 resonance frequency approx. 460 Hz
Process Connection:	thread 1“ EN10226 or 1“ NPT
Electrical Connection:	via plug DIN43650
Power Supply:	24V-DC ± 10%
Output:	transistor output, optically isolated NPN or PNP type depending on wiring 350mA @ 24V-DC, shorttime max. 1A max. power 20W power loss max. 3V max. leakage current 100µA short circuit proof
Power consumption:	<1 VA (blocked transistor)
Time Delay:	1 second from stop of vibration 2 to 5 seconds for start of vibration
Indication:	output signal: red LED on connector
max. load upon the end of the rod: 80 N	
max. pressure inside bin:	10 bar
ambient temperature:	-20°C ... + 60°C
process temperature:	-20°C ... + 70°C
Application:	for high or low level alarm, for dry granular bulk solids, min. bulk density 50 grams/litre, max. grain size 10mm
protection:	IP65
cable gland:	suitable for cable-∅ 4,5...∅7,0mm, max. wire size 1,5mm²