



Level Instrumentation

Vibrating Fork Level Switch – 135 VL



The ever-growing popularity of the 135-VL Vibrating Fork Type Level Switches is ensured by their versatility, provided by their principle of operation. The 135-VL is a Vibrating Fork Level Switch mainly for Liquids and free-flowing low-density solids. It works on the principle of a change in frequency of a Vibrating Fork due to presence of a liquid / solid. The change in frequency is detected by a frequency to voltage converter. The voltage proportional to frequency is compared to a set voltage by a comparator, which drives a relay or provides open collector output.

The 135-VL can be used in almost all liquids: aggressive liquids (acids, solvents), high viscosity liquids it is unaffected by foam, turbulence and gas contents. It can also be used on light and medium density free flowing granules and powders.

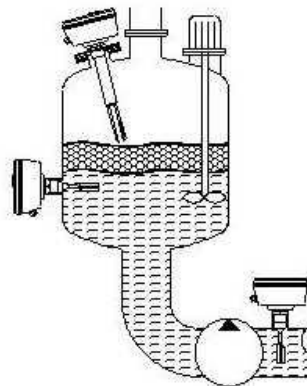
The 135-VL covers a large variety of level detection applications and more....high/ low fail safe limit switch, overflow or dry run protection, pump controls, dry / wet indication in pipes etc.

- ❑ General purpose level switch with intelligent electronics applicable for:
 - almost all liquids
 - light, free flowing solids
- ❑ Two output versions:
 - power relay with DPDT
 - PNP/NPN open collector contact output (for use with PLC's and for Alarm Annunciation)
- ❑ PVDF/ECTFE (HALAR) coated versions for corrosive or sticky media
- ❑ Fit and forget device: simple installation – no maintenance
- ❑ Switching performance does not depend on the change of liquid conductivity, dielectric constant, viscosity, pressure and temperature.
- ❑ Probe extension upto 3 m length.
- ❑ Suitable for Food, Edible oils and hydrogenated fats.
- ❑ Flange or collet sleeve options
- ❑ Hygienic / Sanitary connections
- ❑ Hygienic versions with various process connections (and 1.4 micron fine polishing) for Milk / Food applications.
- ❑ High or Low Fail Safe mode, field selectable.
- ❑ Switching sensitivity Low High, field selectable
- ❑ Bright Bi-colour LED indication. Colour changes from Green to Red under alarm condition.

APPLICATIONS:

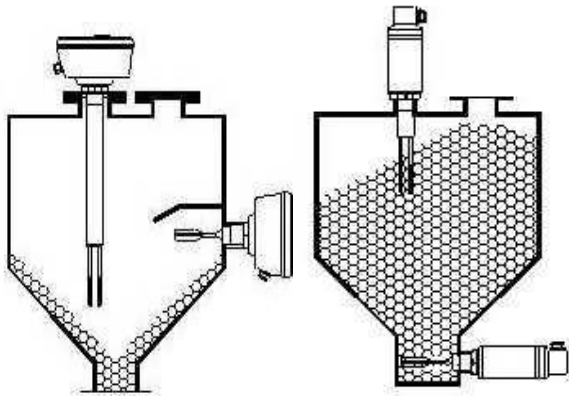
Free flowing solids

Use only on free flowing materials stored in small vessels, hoppers



Side mounting is Recommended only in case of free flowing molecules. In case of side mounting, the 135-VL must be mounted with the fork-tines standing vertically (look for the "dimple" on the hexagonal boss.)

Use only on free flowing materials stored in small vessels, hoppers.



Protect the probe from falling material !
Fork-tines should not be exposed to mechanical load.

Adjust switching sensitivity for solid and liquids according to table.

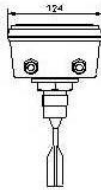


Do not adjust a high sensitivity than necessary, as this may result in the probe indicating even slight residues of material adhering to it. Avoid mountings shown in high viscous liquids and powders.

135-VL is offered in two output versions..... **Relay output** and **Open Collector Output**

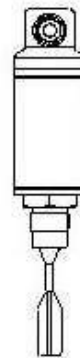
The switch consists of 2 modular units. The output module and the Process Connection & Fork.

SWITCH VERSION – RELAY OUTPUT VL-R



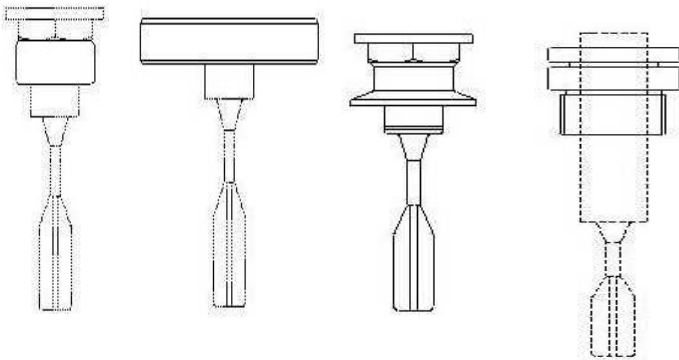
135-VLR is the relay version with robust Aluminium housing; visible, large bi-colour output state indication LED; power relay with DPDT potential free output and a selectable power supply 230/115 VAC & 24 VDC

OPEN COLLECTOR OUTPUT (PNP/NPN OUTPUT) VL-C



135 VL-C is the mini version incorporating a Stainless Steel housing, visible bi-colour output state indication LED, 3 wire PNP/NPN transistor output with 24 VDC supply

PROCESS CONNECTION



THREADED
1" BSP
1" NPT

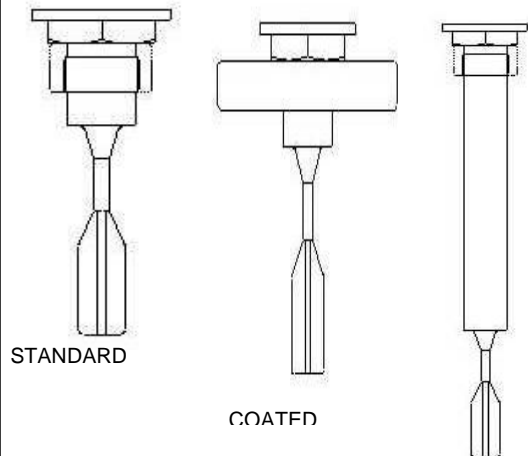
INTEGRAL
FLANGE

TRI-CLAMP
SANITARY

1 1/2" BSP/NPT
COLLET

INTEGRAL FLANGE ONLY FOR COATED VERSION

FORK VARIATIONS



STANDARD

COATED

WITH EXTENSION UPTO 3M

SPECIFICATIONS

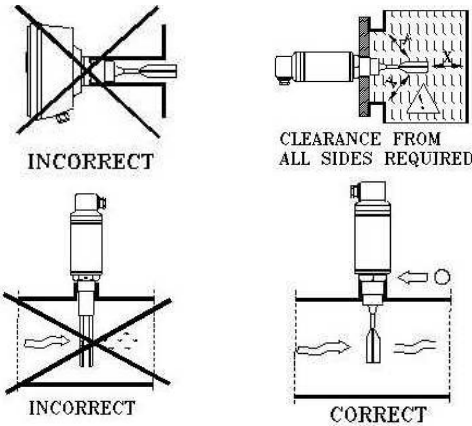
| | |
|---------------------------|-----------------------------------|
| Fork material | SS316 |
| Process connection | Threaded / Flanged / Triclamp |
| Maximum Pressure * | 30 kg/cm ³ *See note # |
| Media temperature | - 20°C to + 130°C |
| Ambient temperature range | - 20°C to + 70°C |
| Insertion length | 127 to 3000 mm |
| Process connection size | Min. 1" BSP / NPT or 1" flanged |

For Higher pressures consult factory
Atmospheric 135-VL X C,U,P,Q versions

| | | |
|---|--|---------------------------|
| Density of medium | Liquid | ≥ 0.5 kg/dm ³ |
| | Solids | ≥ 0.05 kg/dm ³ |
| Liquid viscosity | ≤ 10000 cst | |
| Response time | ≤ 1 sec | |
| Output mode | Bi-colour LED, Green Normal Red –Alarm indicator | |
| Sensitivity settings | | |
| For Liquids – Low - If density ≥ 0.7 kg/dm ³ | | |
| For Solids - Low - If density ≥ 0.5 kg/dm ³ | | |

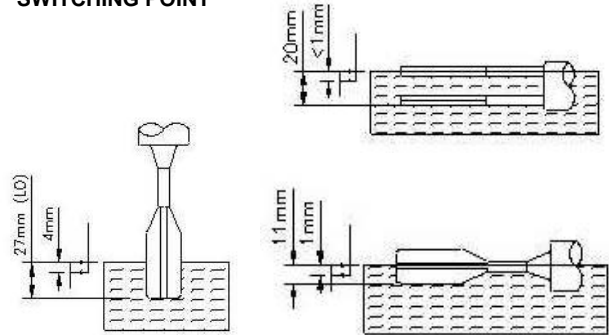
POSITIONING POINT

For positioning the fork-tines use the marking on the Hexagonal neck



Use a TEFLON (PTFE) tape to position the fork-tines.

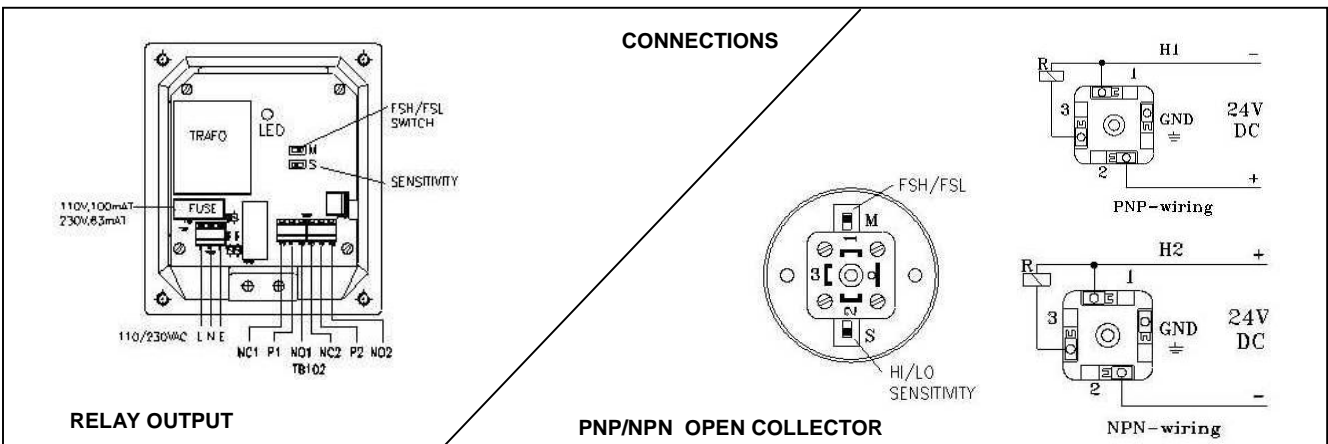
SWITCHING POINT



Liquids: Switching point as well as the switch differential depends on liquid density and mounting position. (Values are for water at 25 °C).

Solids : Switching point as well as the switch differential depends on material quality and mounting position.

| DESCRIPTION | RELAY OUTPUT VERSION | 3 WIRE PNP-NPN OPEN COLLECTOR VERSION |
|---|---|--|
| Model | 135 VL-R | 135 VL-C |
| Housing Material | Polyurethane painted Aluminium | Stainless Steel, 304 |
| Fail safe high/low selection | By slide switch (field selectable) | By slide switch (field selectable) |
| Sensitivity programming (Low/High Density) | By slide switch (field selectable) | By slide switch (field selectable) |
| Output rating | Potential free DPDT relay, 250 VAC, 5 A | PNP/NPN Transistor : 350 mA max. |
| Electric connections (wire cross section) (1.5 sq.max.) | (2 x 3/4" UNF) 2 x 1/2" NPT (standard) | Reverse polarity, over-current and overload Protection – connector PG 11 |
| Supply Voltage | 115/230 VAC, 24 VDC (selectable) | 24 VDC ± 10% |
| Consumption | < 5 VA | < 2.7 W |
| Mechanical protection | IP 65 | IP 65 (with boot) |
| Weight (standard) | ≤ 1.6 kg | ≤ 0.8 kg |

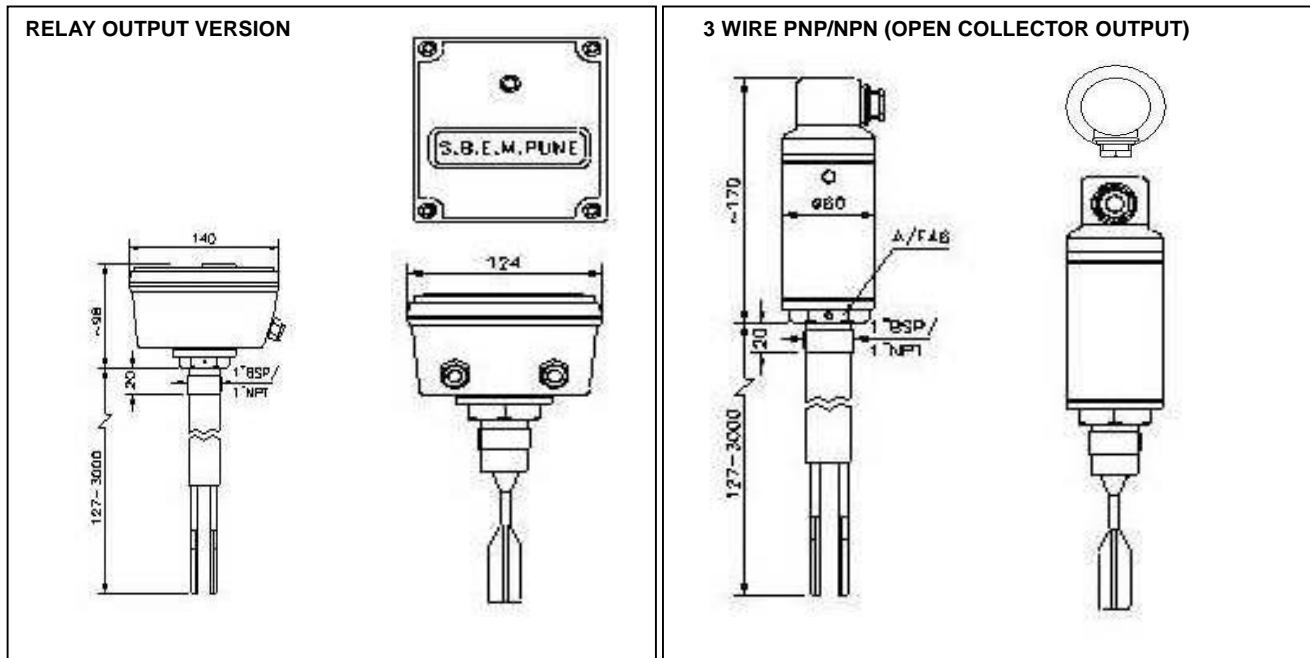


ORDERING INFORMATION

135 VL X X X XX X L = XXXX

| | |
|---|---|
| <p>OUTPUT TYPE</p> <p>R – RELAY C – NPN/PNP OPEN COLLECTION OUTPUT</p> <p>SUPPLY VOLTAGE FOR VLR</p> <p>1 – 24 VDC 2 – 110 VAC 3 – 230 VAC</p> <p>PROCESS CONNECTION</p> <p>B - THREADED 1" BSP N - THREADED 1" NPT S - SLIP ON FLANGE I - INTEGRAL FLANGE (FOR COATED VERSION ONLY) C* - 1 1/2" BSP COLLET D* - 1 1/2" NPT COLLET T* - TRICLAMP 1 1/2" ISO 2852 U* - TRICLAMP 2" ISO 2852 P* - PIPE COUPLING DIN 1185/40 NP Q* - PIPE COUPLING DIN 1185/50 NP</p> <p><input type="checkbox"/> NOTE : 1)* For atmospheric pressure duties only. 2) Collet type connection available for extension length > 300 mm only. 3) For 135 VLC always 24 VDC supply is required.</p> | <p>INSERTION LENGTH IN MM STD 127</p> <p>MATERIAL OF CONSTRUCTION</p> <p>2 – CS (for flange only) 4 – SS 304 (for flange only) 6 – SS 316 8 – PVDF COATED /HALAR (for integral flange only)</p> <p>FLANGE SIZE & RATING(PRESSURE RATING : 150#)</p> <p>00 – NOT APPLICABLE 11 – 1" ANSI 16 – 1 1/2" ANSI 21 – 2" ANSI 26 – 2 1/2" ANSI 31 – 3" ANSI 41 – 4" ANSI 51 – 5" ANSI 61 – 6" ANSI 99 – ANY OTHER SIZE AND STANDARD</p> |
|---|---|

DIMENSIONS



*** Continuous developments may necessitate changes without notice.

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