VIBRATING LIQUID LEVEL SWITCH

www.ktekcorp.com

ISO9001 Registered

PED Registered

Model VF20 & VF30

FEATURES:

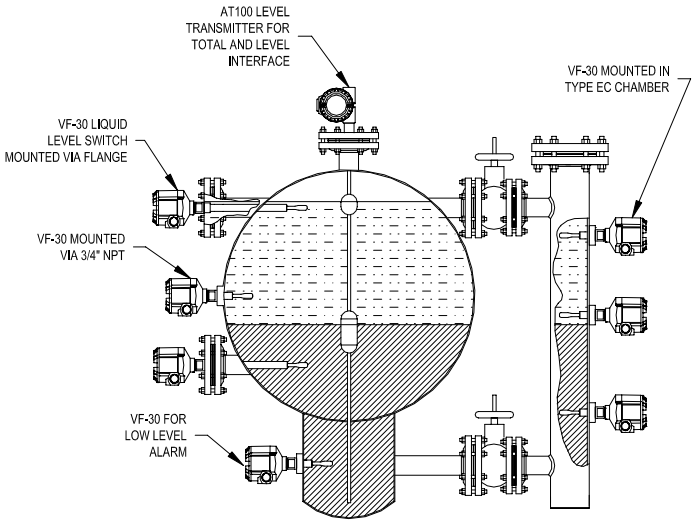
- **Direct Replacement For Ultrasonic Gap Or RF Capacitance Switches**
- **Superior Resistance To Coating Or Build-Up On Sensor**
- **Any Mounting 3/4" NPT Or Larger**
- **No Calibration Required**
- **Loop Powered Or Relay Contact**

OPTIONS:

- **Integral System-Diagnostics / Self-Test**
- **Adjustable Time Delay (0.1 – 10 seconds)**
- **Alarm Status LED**
- **Field Selectable Fail-Safe**
- **Dual Compartment Housing**
- **Ceramic Glass To Metal Feedthrough Provides Secondary Pressure Boundry**
- **Special alloy sensors:**
  - **Hastelloy C-276**
  - **Hastelloy B**
  - **Monel**
  - **Inconel 600**

PRINCIPLE OF OPERATION:

The VECTOR utilizes a piezoelectric driven tuning fork that exhibits a large change in resonant frequency when immersed in any liquid. A "smart" microprocessor-based electronic unit keeps the sensor in a resonant state as it changes from dry to wet or wet to dry. The resonant frequency is continuously monitored for changes created by a wet or dry sensor and an alarm is provided via a relay or 4-20 madc signal. An important feature of the Vector is that its resonant frequency is not significantly affected by coating on the fork until the space between the forks is bridged. Vector's ability to identify true liquid level in viscous, coating or aerated liquid is unparalleled. The self-test option checks for fault conditions such as crystal disbonding and excessive product build up on the sensor. Applications include redundant high/low liquid level without concern for parameters such as specific gravity, dielectric constant or mounting position of the sensor.



Vector Sample Applications

VF20

Ordering Information:

VF20 / a / b / c / d / e / f / PL

/a =Operating Power
- 1 = 24VDC
- 2 = 120VAC
- 3 = 240VAC

/b = Process Connection
- P7 = 3/4" MNPT (Standard) ,P1 = 1" MNPT, B1 = 1" BSPT
- Tnn = Tri-Clamp
  - Specify 'nn' as follow: 10 = 1" , 15 = 1.5", 20 = 2.0", 25 = 2.5" up to 6"
- WP = Welded Flange (Specify type & size, FLNG-0202-1)
- FL = Loose Flange (Specify type & size, FLNG-0202-1)

/c = Sensor Material
- S6 = 316L SS (Standard),
- HC = Hastelloy C-276

/d = Probe Finish
- Blank = Standard Finish
- 1F = 180 grit finish (suitable for 3A service)
- 2F = 240 grit finish
- EP = 240 grit and Electropolished

/e = Special Option (omit if not required)
- MM = M20 Conduit Connection

/f = Approval
- FM = Factory Mutual Research Corp. (FM)
- CSX = CSA Explosion Proof
- CEX = Cenelec Flame Proof

/PL = Probe Length: 4 " Standard,
- Specify extended lengths in 1" increments up to 100" (2540 mm)

Specifications:

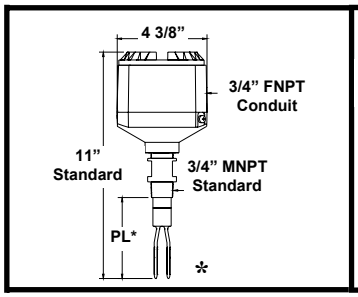
Switch Type: Frequency-shift Tuning Fork.
Operating Power: 24 VDC , 120 or 240 V 50/60 Hz
Contact Output: 10 Amp DPDT
Response Time: 0.1 seconds
Hysteresis (Deadband): Approx. +/- 1/8 inch.
Repeatability: +/- 0.1 inch
Time Delay: 0.1 second fixed
Operating Temperature:
Electronics: -40°F (-40°C) to 165°F (74°C) Ambient
Sensor: -40°F (-40°C) to 300°F (149°C)
Operating Pressure: 0 PSIA to 600 PSIG (41 bar)
(Contact factory for higher pressures)

Factory Mutual & Canadian Standards Association
Hazardous Area Rating:
XP/ I / 1 / ABCD / T6 Ta= 74°C; DIP / II,III / 1 / EFG / T6 Ta=74°C
NEMA 4X

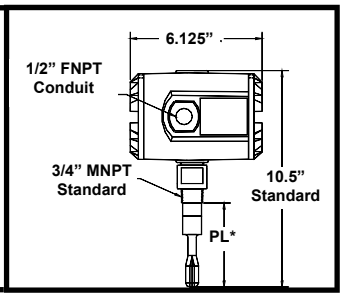
Cenelec EEx d IIB T3 - T6

Conduit Connection: Single Compartment: 3/4" FNPT (19mm)
Dual Compartment: 1/2" FNPT (13mm)

Specific Gravity: 0.45 Minimum



Standard Outline Dimensions



Optional Dual Compartment Dimensions

***Trip Point 3/4" from probe end typ.**

VF30

Ordering Information:

VF30 / a / b / c / d / e / f / g / PL

/a =Operating Power
- 0 = Loop Powered (12.5 to 35 VDC)
- 1 = 24VDC
- 2 = 120VAC
- 3 = 240VAC

/b = Process Connection
- P7 = 3/4" MNPT (Standard) , P1 = 1" MNPT,
- B1 = 1" BSPT
- Tnn = Tri-Clamp
  - Specify 'nn' as follow: 10 = 1" , 15 = 1.5", 20 = 2.0", 25 = 2.5"
- WP = Welded Flange (Specific type)

/c = Sensor Material
- S6 = 316L SS (Standard)
- HC = Hastelloy C-276
- HB = Hastelloy B
- MO = Monel
- I6 = Inconel 600

/d = Probe Finish
- Blank = Standard Finish
- 1F = 180 grit finish (suitable for 3A service)
- 2F = 240 grit finish
- EP = 240 grit and Electropolished

/e = Special Options (omit if not required)
- HT = High Temperature (>250°F) Extension
- MM = M20 Conduit Connection
- HS = 5 Pin Hermetic Feed-through

/f = Aluminum Single Compartment Standard
- Optional, for loop-power version only:
- A = Alum. dual compartment housing
- S = Stainless Steel dual compartment housing
- R = Remote housing (50 ft./ 15.25 m maximum)

/g = Approval
- FM = Factory Mutual Research Corp. (FM)
- CSX = CSA Explosion Proof
- CSI = CSA Intrinsic Safe (only with loop powered option)
- CEX = Cenelec Flame Proof
- CEI = Cenelec Intrinsic Safe (only with loop powered option)

/PL = Probe Length: 4 " Standard; Specify extended lengths in 1" increments up to 100" (2540mm).

Specifications:

Same as VF20 except as noted below:

Operating Power: Loop Powered, 24VDC, 120VAC or 240VAC
Loop Output: Dry Sensor = 8 +/- 1mADC
Wet Sensor = 16 +/- 1mADC
Fault = 20 +/- 1 mADC or 4 +/- 1 mADC
Enhanced Features: Continuous Self-Test. Alarm status LED indicates wet, dry or fault. Adjustable time delay (.01 to 10 second)

Factory Mutual & Canadian Standards Association
Hazardous Area Rating:
XP/ I / 1 / ABCD / T6 Ta= 74°C; DIP / II,III / 1 / EFG / T6 Ta=74°C
NEMA 4X

Cenelec EEx d IIB T3 - T6

Loop Powered Only, /A & /S housing only:
XP/ I / 1 / ABCD / T6 Ta=74°C;DIP / II,III / 1 / EFG / T6 Ta=74°C
IS / I,II,III / CDEFG / T4 Tamb=77°C;
NI / I,II,III / 2 / ABCDFG / T4 Tamb=77°C ELE1011/ 9/01/99
NEMA 4X

Cenelec EEx ia IIB T3 - T6

CRN Registered - Contact Factory

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