

## Vital - Compact Vibrating Fork Level Switch

Version 2.1

Vital is a compact level limit switch suitable for all kinds of free flowing solids and grains for overspilling and dry run detection. Vital is unaffected by spurious vibrations and is independent of the application material's electrical properties. Vital can be made with a minimum of 1 1/4" mounting and 100 mm tines.

### Principle

A tuning fork made of stainless steel is kept vibrating at its resonant frequency by piezo ceramic elements. When the service material covers the tines of the fork, vibrations are damped. This damping is sensed electronically and the processed signal is used to energize a relay whose contacts in turn are used for annunciation and / or control.

### Approvals

IP-68, CMRI, CCOE, EIL, IS-13947



### Features

- Compact instrument, minimum tine length of 100 mm
- No moving parts, no wear and tear, maintenance-free
- Comes with a fork erosion alarm
- IP-68 Protection, as per IS-13947
- Fast switching time < 0.85 seconds (available on request)
- Polished tines ideal for hygienic applications

### Applications

- PET / PVC chips with under water detection
- Rice, wheat, other food grains, flour
- Iron ore, sinters & pulverized coal
- Dry sand & fly-ash
- Packaging machines
- Milk Powder

### Why Sapcon

- Sapcon ≈ Synonymous with Level Measurement.
- Pioneers in this field with over 32 years of expertise.
- Understanding your problems, always ready with solutions
- Masters in customization.
- Offering accelerated delivery, saving your inventory costs.

### Parts

The parts of Vital are explained in Figure 1. All dimensions are in millimeters. Figure 2 shows the mounting arrangement for Vital.

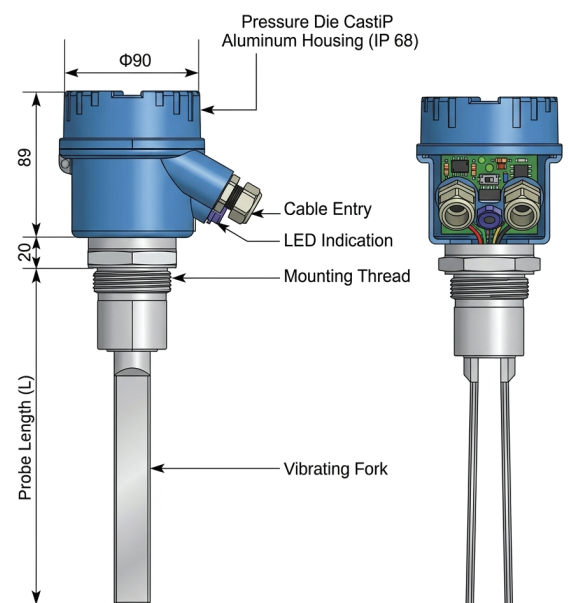


Figure 1: Parts of Vital

## Technical Specifications

### Mechanical

<b>Housing:</b>	Pressure die-cast aluminum (IP-68) / FLP / Stainless Steel
<b>Type:</b>	Electronics top mounted with fork
<b>Pressure:</b>	Absolute, max 15 bar on request
<b>Mounting Arrangement:</b>	Threaded: 1 1/2" BSP / NPT
<b>Flanged:</b>	As per requirement
<b>Other:</b>	As per requirement
<b>Mounting Material:</b>	MS / SS 304 / SS 316
<b>Probe Length:</b>	Standard: 200 mm
<b>Customized:</b>	100 mm - 3 meters
<b>Extension:</b>	Pipe GI / Stainless Steel
<b>Fork Material:</b>	SS 316, SS 316 L
<b>Cable Entry:</b>	2 nos of 1/2" BSP/NPT, PG 13.5
<b>Temperature in vessel:</b>	-20°C to 80°C / 120°C / 150°C / 200°C

### Electrical

<b>Indication:</b>	Bi-color LED (Normal: Green, Alarm: Red)
<b>Mains:</b>	90-265 V AC & 18-55 V DC
<b>Power Consumption:</b>	400 mW max.
<b>Output:</b>	Open collector PNP, NPN
<b>Relay Rating:</b>	Contact 6A, 230VAC for non-inductive loads
<b>Fork Frequency:</b>	150-350 Hz (depends on tine length)
<b>Delay Setting:</b>	1-25 seconds (Covered and Uncovered)
<b>Fail-safe Settings:</b>	Field Selectable
<b>Minimum:</b>	Fail-safe Low
<b>Maximum:</b>	Fail-safe High
<b>Sensitivity Settings:</b>	Field selectable
<b>Low:</b>	Strong vibrations
<b>High:</b>	Weak vibrations
<b>Response Time:</b>	Standard: 1 second
<b>Customized:</b>	0.8 seconds

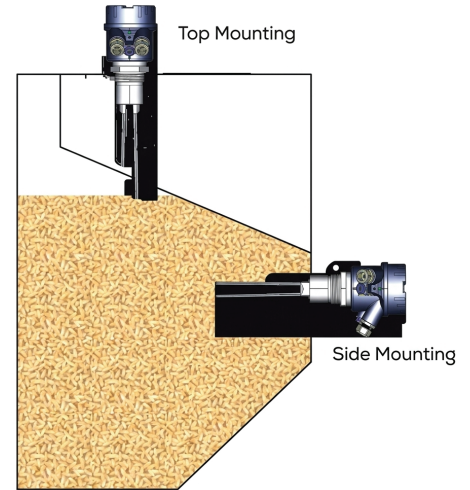


Figure 2: Mounting Arrangement for Vital

### Model Selection

<b>VITAL</b>	
<b>ENCLOSURE</b>	
W8- WEATHERPROOF IP-68	
FC- FLAMEPROOF (GAS GROUPS IIA, IIB & IIC)	
<b>TEMPERATURE</b>	
S- STANDARD TEMPERATURE UPTO 80°C	
H1- HIGH TEMPERATURE MAX 150°C	
H2- HIGH TEMPERATURE 200°C	
<b>PROBE LENGTH</b>	
PL- STANDARD PROBE LENGTH 200 mm	
PX- EXTENDED PROBE LENGTH (UPTO 3000 mm)	
<b>PROBE MOUNTING ARRANGEMENT*</b>	
T- THREADED BSP / NPT	
F- FLANGED ASA / ANSI / JIS / DIN; O- OTHER	
<b>WETTED PARTS</b>	
S6- SS 316	
SL- SS 316L	
HC- HASTLE ALLOY C	
P- PTFE LINED	
PA- PFA LINED	
XX- HALAR LINED	
<b>OUTPUT</b>	
11- SPDT RELAY OUTPUT	
12- DPDT RELAY OUTPUT	
13- OPEN COLLECTOR PNP/NPN	
D- 8/16 mA CURRENT (ONLY DC VERSION)	
VITAL FC S PL T SL D	