VIPL-CCLT Capacitance Level Transmitter

VIPL-CCLT is suitable for continuous Level measurement & controlling in conductive or non-conductive liquids, granular materials of homogeneous composition that have stable dielectric constant.

Principle

It consists of electric insert and probe. Probe comprises sense and shield electrodes (reference probe in absence of metallic tank). The probe is mounted on the top of the tank. The sense electrode and the tank's wall serve as the two electrodes of imperfect capacitor with service material as dielectric. Change in material level causes a change in capacitance of this capacitor. The electronic insert measures change of capacitance accurately & shows the results in mA.

Features

- A complete solution: Scanning, Displaying, Controlling & Transmitting
- Convenient outputs: 4 Digit 7 Segment Display RS485 & Analog 4/20 mA; Compatible with PLC, SCADA
- Probe length between 140mm to 30m available
- Adjustable Sensitivity: 10 Choices
- Full set of Controlling: Alarm logic & Pump Control logic
- Power Supply: Universal 9-30 V DC
- Analog Output: 4-20mA (3 wire or 4 wire)
- Temperature Durability: Standard Model up to 60°C (High temp. models on demand)
- Internal Temperature Compensation
- Extrapolated Calibration range (From any two points)
- Suitable for wide range of liquids
- Low Cabling Cost
- Self-Diagnosis

Parts

The parts of VIPL-CCLT are explained in the following figure (Figure 1).

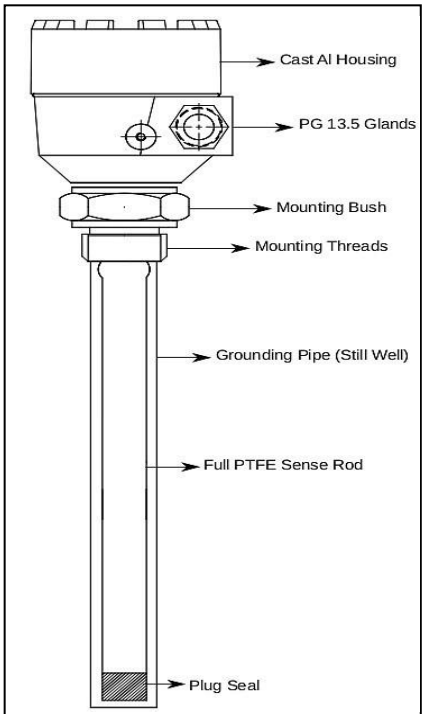

Figure 1: Parts Of VIPL-CCLT

Applications

- Telecom industry
- Automobile industry
- Refineries
- Water treatment plants
- Townships
- Flour mills

Sensing:

Cap Range: 10 to 1,00,000 pF

Response Time: Adjustable

• **Calibration:** At 0% and 100% (or any 2 levels) through push buttons

Notes

• Reference probe required for non-metallic tanks.

• Stilling-tube required for turbulent liquids and non-uniformly sectioned tanks.

• Maximum allowed loop/series resistance: Load (Ohm) = (Supply Voltage - 4) x 50

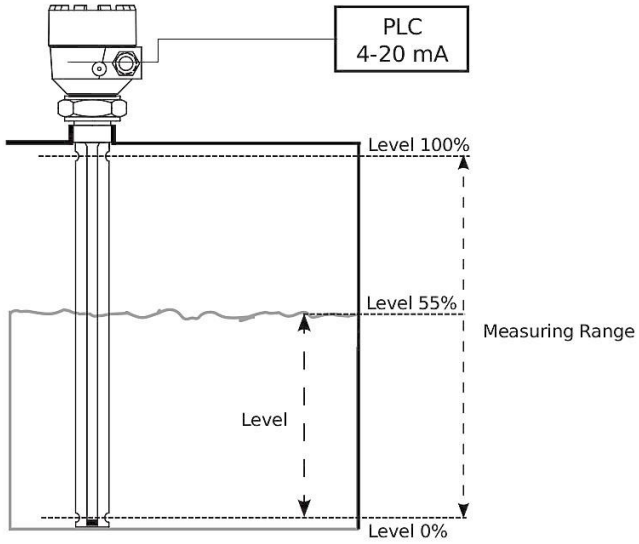

Figure 2: Mounting Arrangement for VIPL-CCLT

Technical Specifications

- **Housing:** Cast aluminum weatherproof
- **Type:** Integral with sense rod or probe • **Cable Entry:** 2 X 1/2" BSP / NPT / DC
- **Mounting:**
  - **Screwed:** 1" or 1 1/2" or 2" BSP/NPT (M)
  - **Flange:** As per order or adjustable flange
  - **Material:** MS (Plated) / SS
- **Ambient Temperature:** 0°C to 80°C
- **Power Supply Required:**
  - **Voltage:** 9 to 30 V DC
  - **Current:** 40mA at 12 V DC
  - **Power Consumption:** 480mW at 12 V DC
- **User Interface:** 4 digit LED display + 4 keys
- **Output: Analog:** 4 to 20mA (Galvanically isolated)
- **Digital:** RS-485 Duplex
- **Relay Output:** External relay with control option: Alarm/Pump; Fail-safe: H/L; Delays: Cover/Uncover

Measuring System

VIPL-CCLT is suitable for continuous level measurement and controlling in conductive or non-conductive liquids, granular materials of homogeneous composition with stable dielectric constant. It consists of electronic insert and probe. Probe comprises of sense and the shield electrodes (reference probe in absence of non-metallic tank). The probe is mounted on the top of the tank. The sense electrode and the tank's wall (reference probe in absence of non-metallic tank) serve as the two electrode of imperfect capacitor with the service material as the dielectric. Change in material's level causes a change in capacitance of imperfect capacitor. The electronic insert measure the change of capacitance accurately and shows the result on display in mA/percentage form. An external relay can also be operated by feeding the required data. See Figure 2 for reference.

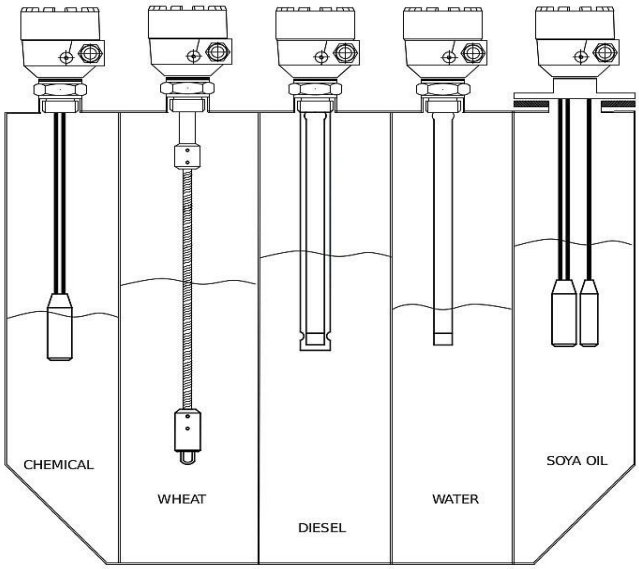

Figure 3: Installation of Various Probes

Model Selection

VIPL-CCLT SERIES

121 SINGLE POINT SWITCH (1 RELAY)
221 SINGLE POINT SWITCH (2RELAYS IN PARALLEL)
321 SINGLE POINT SWITCH (WITH TIME DELAY)
421 PUMP CONTROL LOGIC (WITH ONE RELAY)
521 PUMP CONTROL LOGIC (WITH 2RELAYS IN PARALLEL)
621 (TWO POINT SWITCH (1RELAY FOR EACH SET POINT)
6P1 ONE PUMP CONTROL+SINGLE POINT SWITCH
6P2 TWO PUMP CONTROL (1RELAY FOR EACH POINT)
7P1 ONE PUMP CONTROL+2 POINT SWITCH
7P2 SINGLE POINT+TWO PUMP CONTROL
7P3 3 PUMP CONTROL

ENCLOSURE

W WEATHER PROOF SQUARE
PF FLAMEPROOF PROBE HEADS ONLY

SERVICE TEMPERATURE

S STANDARD UPTO 80°C
H2 HIGH TEMPERATURE 150°C

POWER SUPPLY

230 V AC
110 V AC
24 V DC

PROBE TYPE

RD ROD PROBE
RP ROPE PROBE

MOUNTING TYPE

T THREADED
F FLANGED
O OTHER

INSULATION MATERIAL

PV PVC
PT PTFE (TOTAL TEFLON)

WETTED PARTS

MS (PLATED) S4 SS 304
S6 SS 316SL SL SS 316L
HC HASTLE ALLOY C PC
PTFE COATED

VIPL	121	W	S	A	RD	T	PV	MS