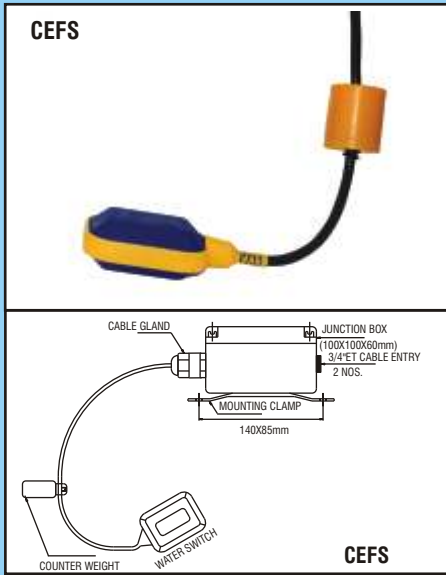




**TOTAL
LEVEL
MONITORING
SOLUTIONS**

Proto 
Control

AN ISO 9001-2000 COMPANY



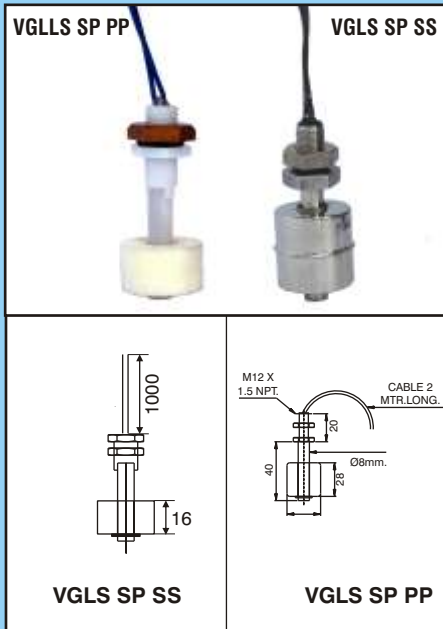
This is one of the most simple and economical levels switch designed for sensing levels of water in large tanks and sumps. The float (PP) contain micro switch assembly and is suspended with a cable. When float tilts upwards due to rise in level operates a micro switch inside. Adjustable stopper is supplied with the cable for adjusting the set point and on off differential.

Specifications :

- Ordering Code : CEFS : 5
- Float Material : PP
- Cable length : 5 Mtrs, PVC, 3 Core
- Contacts : 1 C/O rated for 10 Amp resistive at 230 V AC
- Optional Accessories : Flange with termination box : F
- Typical Ordering Code : C E F S 5 F



VERTICAL GUIDED LEVEL SWITCH / MAGNETIC FLOAT LEVEL SWITCH



Single Point Level Switch

This is most economical level switch designed for single point operation. Ideal for monitoring level of liquids in small tanks. Suitable for liquids like lubricating oils and Coolants having density 0.8 to 1..

Models

- | | | |
|----------------|-----------------------|----------------------|
| | : VGLS SP PP | : VGLS SP SS |
| Float Material | : Polypropylene Foam, | : SS 316 |
| Float Dia. | : 22 mm | : 28 mm |
| Lead wire | : 1 Mtr | : 1 Mtr |
| Contact rating | : 50 W, 240 V AC Max | : 50 W, 240 V AC Max |
| Contact | : SPST | : NO / NC |

Multipoint Level Switch

APPLICATION :

- Top Mounted Level switch for water and liquids.
- Suitable for Corrosive chemicals.
- Used in Food industry application.

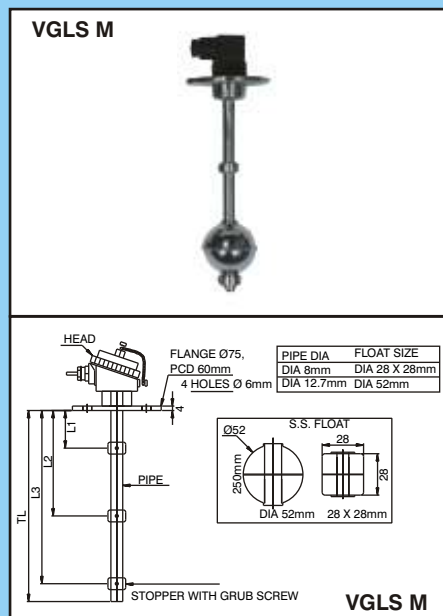
OPERATING PRINCIPLE : Vertically guided Level switch operates on the base of magnet equipped with float, which moves directly with the liquid surface and actuates a hermetically sealed switch within the stem. It consists of a multi-level switch and a float system for level sensing. Number of reeds are used for multiple level measurement. Make sure that the liquid has no iron powder or magnetic interference.

FEATURES:

- Rugged construction of reed switch provides long trouble free service.
- Installation is simple.
- Potential free output contact.
- Extremely compact, simple and easy to install.
- Not effected by electrical interference.
- High repeatability, minimizing the effect of shock, vibration & pressure.

SPECIFICATIONS :

- No. of switching points : Please specify.
- No. of Floats : Depend on the number of switching points Please specify.
- Float Dia. & MOC of float : Please specify specific gravity of liquid. (Standard floats designed for water). (Various floats available for the liquid having specific gravity less than 1 , please consult factory.)
- Contacts : 1 NO rated for 30 VA, 24 VDC for each level point
- Mounting : Top with flange.
- MOC of flange : SS,
- Flange Dia. : 70 mm, 60 mm PCD.
- No. of holes : 4 X 6 mm Dia.



Ordering Proforma

VGLS M 300 A 1 A

Total Stem Length(TL) : (Pl Specify mm)	
No of Floats : 1 - A, 2 - B, 3 - C	
No. of Switching Points : 1, 2, 3	
Termination Compartment Cast Al	A
Din Connector	D

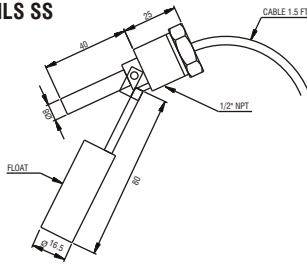
Please specify switching points(L1,L2,L3) in mm from bottom of the flange.



SMLS SS



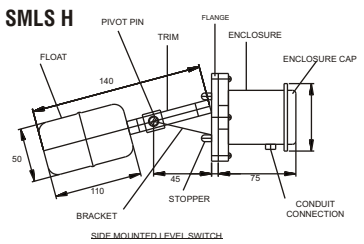
SMLS SS



SMLS H



SMLS H



APPLICATIONS :

- Measuring level of Liquid,
- Use in Process, food Industry.

PRINCIPLE OF OPERATION :

The Side Mounted Level switch operates on the base of Reed switch. Permanent magnet is present inside the float and Reed switch is present inside the stationary stem. When the magnetic field of permanent magnet inside the float is moved into the proximity of the reed switch, inside the stationary stem, the reed switch "snaps" the contact together and closed the electrical circuit. When the Magnetic field is moved away from the reed switch, the reed switch does not touch and the circuit is open. This side mounted Level switch can operate with logic NO (Normally Open) & NC (Normally Closed) both.

FEATURES :

- Easy to install.
- Low Hysteresis and High Repetition switching accuracy.
- Good Performance Ratio & economical.
- Performance is independent of material characteristic.

ORDERING PROFORMA :

SIDE MOUNTED LIQUID LEVEL SWITCH : MINIATURE TYPE

TYPE	ENCLOSURE
SMLS P	Plastic
SMLS SS	Metallic

SIDE MOUNTED LIQUID LEVEL SWITCH : HEAVY DUTY TYPE SMLS H

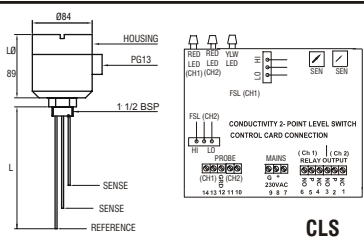
SPECIFICATIONS :

Mounting	: Horizontal.
MOC of float	: Stainless Steel.
Length of float	: 110 mm.
Float Dia.	: 50 mm.
Logic	: 1 CO both.
Contact Rating	: 5Amp at 240 VAC



CONDUCTIVE TYPE LEVEL SWITCH

CLS



APPLICATION :

For sensing level of conducting non sticky clear liquids like water, Acid, Salt & various chemicals, Sugar solutions, Milk, Juice etc.

FEATURES :

- Simple, low cost level controller.
- Automatically controls liquid levels in any container.
- Quick installation
- Low current operated circuit ensures personnel safety.
- Wide range of electrodes with different mounting configuration, constructions and styles to suit every application.

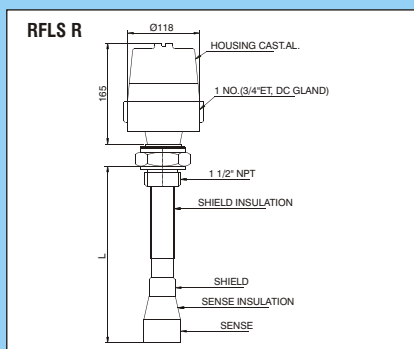
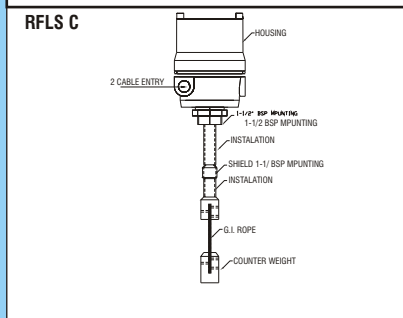
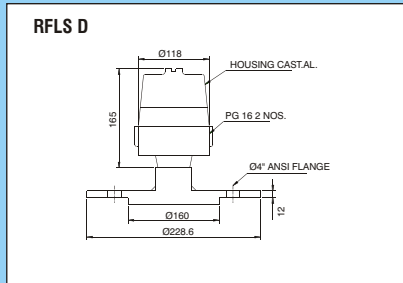
OPERATING PRINCIPLE:

A conductive Level switch operates on the base of conductive principle. These are equipped with two or more electrodes (one is ground and others are sensing electrodes). When a conductive fluid comes in contact with two or more of sensing electrodes, an electric circuit is completed. A very small alternating voltage is applied to two probes tips. The circuit gets closed by liquid when liquid touches the probe tip. The voltage & current used are so small that no dangerous shock can occur. The use of alternating voltage prevents deposition and electrolysis.

SPECIFICATION :

Control Supply	: 230 V AC 50 Hz / 24V DC. Please Specify.
Output	: 1 C/O Relay contact, rated for 5 Amps. Resistive 230 V AC.
Max. Temp for control unit	: 60 °C
Enclosure	: Din Rail mounting, IP 30 / Field mounting, IP 55.
Indication	: LED Indication. For relay ON
Mounting of probe	: Flange mounting.
Sensing	: SS wire,
Insulation	: PTFE.
Counter weight	: SS .





APPLICATION :

- Detection of levels of solids, liquids granules food grains and powders,
- Detection of top and bottom levels of coal bunkers
- Detection of chute blockage in feeding hoppers
- Level detection in cement silos
- Level detection of Fly ash
- Level detection for Stock Pile

PRINCIPLE OF OPERATION :

The RF Level switch operates on the basis of RF absorption. The electronic unit generates a sinusoidal wave, applied to the electrode creating a field around it. RF environment absorption changes (Electrical Loss) around the electrode are reflected on the changes of generator supply current. Such changes caused by increase in level is amplified and used to actuate the relay. Special Coat-guard amplifier is incorporated in the circuit, which will ignore the effect of deposition.

The RF Admittance type, point level switch, designed with special sensing probe, using special shield coat-guard circuit and three element probe. The level switch immune to the material built-up on the probe and material bridging between the probe and hopper wall.

FEATURES :

- Three Element coat-guards Technique: Ignores material built-up on probe.
- Fast end easy installation: Simple to calibrate.
- Suitable for highly dusty environment.
- Field selectable operation logic : Configurable high or low point switching.
- Economical.

TECHNICAL SPECIFICATIONS :

- The electronic circuit can be integral with probe housing, cast Al., IP 65. or can be remote mounting
- Ambient Temperature: 0 60 Deg. Cent. (For Fly Ash, we have special sensors with PT-FE) & ceramic coating. Please specify application area and working temperature.)
- Control Supply: 230V AC, 50 Hz (+_15%) (Standard), other voltages like 110V AC, 24V DC are also available on request.
- Output: 2C/o Relay contact, rated for 5 Amps. Resistive @ 230V AC.
- Switching Delay: 2 20 secs.
- Safety Operation: Field selected for minimum or maximum switching points.
- Switch status LED: Green: Normal, Red: Alarm Yellow: Power ON.
- Particle size : max 30 mm



Ordering Proforma :

RFLS **R** **300** **1** **I** **1**

Probe Type :	
DISC	D
ROD	R
ROPE	C

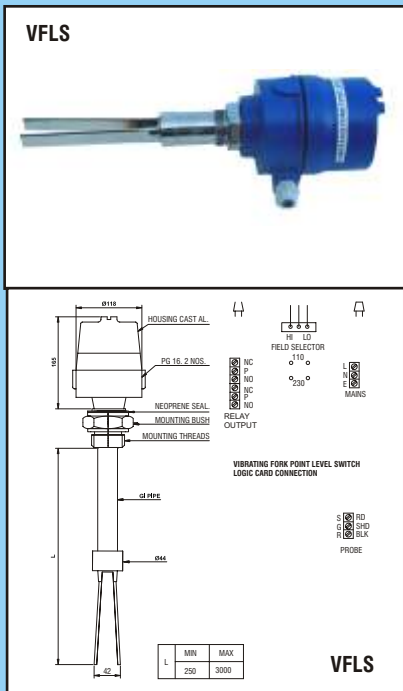
Length in mm 9 for probe type R&C only : Pl specify

Supply Voltage	
230V AC , 50Hz	1
110V AC , 50Hz	2
24 V DC	3

Control Unit	
Integral (Temp Up to 60 Degree cent)	I
Remote (Sensor temp up to 200 degree cent)	R

Mounting :	
Screwed 1/2 " BSP	1
Flanged	2





APPLICATION:

Find application in food , packaging , Cement, steel & power generation industries for monitoring level of ore, fertilizer, food grains, coal, sand, chips, granules etc. Ideal for products that do not have heavy build-up on forks and can handle dense materials such as cement to extremely light products like styrene. Not recommended for slurries or in water with high turbidity.

FEATURES:

- No calibration required, simple to install.
- Performance independent of material characteristics i.e. change in conductivity, moisture, di-electric constant.
- No moving parts, hence no wears and tears.
- Weatherproof enclosure, SS 316 for food industry.
- Field selectable operation logic : configurable high or low point switching.

SPECIFICATIONS :

- Material Size : Up to 10 mm.
- Material bulk density : 0.05 Kg/dm³ minimum.
- Operating Pressure : 10 Kg/cm² max.
- Fork Length : Max upto 2000 mm,
- Control supply : 230 V AC (standard) Other supply voltages on request)
- Output : 2 C/O relay contact, rated for 5 Amp. resistive at 230 V AC.
- Ambient Temp : 60 degree cent max.
- Temp in vessel : 150 degree cent max.
- Enclosure : Cast Al, IP 65, integral with probe



PRINCIPLE OF OPERATION :

Vibrating Fork Level switch contain Piezo-electric crystal in the probe, which causes the fork to vibrate at a frequency of 125 Hz. It detects the presence or absence of material and actuate a relay. It gives point output, indicating high & low level alarm. It is a compact and robust design, suitable for side & top mounting. The constant vibration of the fork provides self-cleaning characteristics. The change in vibration is detected by circuit which causes the relay to change state after few seconds delay. When fork is free from material relay reverts to its normal condition.

Ordering Proforma

VIBRATING FORK TYPE LEVEL SWITCH **VFLS** **300** **1** **2**

Length of Probe in mm

Supply Voltage	
230V AC , 50Hz	: 1
110V AC , 50Hz	: 2
24 V DC	

Mounting :	
Screwed 1/2" BSP	:1
Flanged	:2
Other	:3



**APPLICATION :**

- Various liquids including water storage tank,
- Moderate range solids such as loading, bagging hoppers.
- Mineral Oil.
- Cost effective Level Measurement for Multiple silo applications.
- Versatile : Short or long range liquid or Dusty solids application.

FEATURES:

- Fully temperature compensation facility.
- Easy to install.
- Automatic variable gain.
- Plug in terminal.
- Differential Level measurement.
- Sononic Transducer Technology.
- Advanced, process adaptive signal processing, secondary lightning protection.

PRINCIPLE OF OPERATION :

Integrated compact Ultrasonic Level Transmitter with process current and HART communication as standard for liquid applications only. Not recommended for foam liquid surface. They are based on the principle of ultrasonic rays. It is capable for liquid applications upto 10 Mtrs. range. The transducer is fitted to the top & faced down towards the material being measured. The transmitter then fires electronics pulses, which the transducer convert into acoustics pulses (Ultrasonic rays). These pulses travels to material & is reflected back from the same to the sensor. Transducer then converts these pulses again into signal, and accordingly giving 4-20 mA DC analog, isolated output. With reference to the time taken by the pulses to travel from transmitter and to reflect back from the material to the receiver in the sensor, we can determine the distance.

SPECIFICATION :

Supply	: 230V AC or 24VDC
Output	: 4-20mA, Plus 1 Relay output.
Enclosure	: Polycarbonate, IP65
Range	: 30mtr (For solids) & upto 10 Mtrs. for liquid application.
Temperature range	: -30 to 65 degree.

Inform Following Details so as to offer proper model

- Area of application
- Specifications / dimensions of tank / hopper
- Measuring range
- Measuring accuracy expected
- Material to be sensed ,
- Particle size with moisture, dust contents
- In case of liquid whether foam, waves & vapor are present
- Temperature / pressure
- Material of transducer (for corrosive liquids)
- Output required
- Power supply
- Two wire or four wire type
- Mounting Flange / thread mounting
- Local indication required
- Digital communication like HART or RS 485 (with MODBUS) is required

RADAR LEVEL TRANSMITTER :**APPLICATION:**

- For level monitoring of liquids and free flowing solids.
- Suitable for highly dusty environments such as cement industry.
- Less affected by environment effects like wind, rain etc.

OPERATING PRINCIPLE:

Radar Level Transmitters operates on the principle of Frequency modulated continuous wave. However, MicroTREK Level Transmitters operates on Time domain Reflectometry principle. A wave is emitted by the antenna. As soon as the pulses reaches the surface of the medium, it is reflected back to the electronic module. Level distance is directly proportional to the flight time of the pulse. The measured Level data is converted into 4-20 mA DC analog, isolated output. With reference to the time taken by the pulses to travel from transmitter and to reflect back from the material to the receiver in the sensor, we can determine the distance.

FEATURES :

- Minimizes signal loss.
- Eliminates false echoes.
- No moving parts.
- High accuracy.
- Solid, Flexible & co-axial probes.
- Non-contact type Level Transmitters.

SPECIFICATIONS:

2 wire TDR Level Transmitter & FMCW for liquids and free flowing solids.	
Range	: Up to 24 Mtrs & 100 Mtrs.
Housing	: Paint coated aluminum housing.
Enclosure of Electronics	: IP 65 / NEMA 4.
Output	: 4 - 20 mA with HART Communication
Power Supply	: 18 to 35V DC.
Electrical Connection	: DIN Connector (PG 11).
Sealing	: Viton.
Probe type	: Mono cable, Dia : 8 mm, SS-1.4571 max.
Probe Length	: 24 Mtrs.
Process Connection	: 1.5" BSP with slip on 4" MS Flange, 15 mm thick.

