

# **Liquid Level Measurement**

# **Direct Methods**

Direct methods sense the surface or interface of the liquid and is not affected by changes in material density.

! Dip Stick

- ! Sight Glass
- ! Floats

# **Dip Stick** Stick 4 with scale Liquid

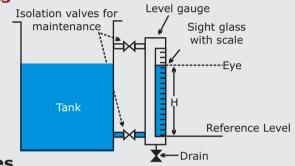
#### **Advantages**

- ! Simple and cheap
- ! Can be used with any wet material and not affected by density



! Visual indication only

# **Sight Glass**

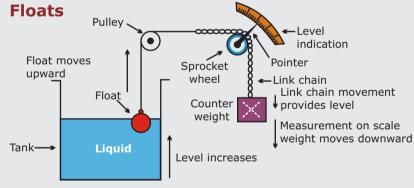


# **Advantages**

- ! Direct reading is possible
- ! Can be used in pressurized tanks

# **Disadvantages**

- ! Visual indication only
- ! Accuracy depends on cleanliness of glass and fluid



#### **Advantages**

- ! Level can be measured from any level of ground

#### **Disadvantages**

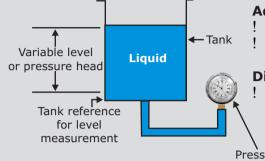
! Limited to moderate pressures

# **Indirect Methods**

Indirect methods sense level by measuring other physical parameter such as pressure, weight, or temperature.

- ! Hydrostatic Head Method
- ! Bubbler or Purge Method
- ! Air Bellow

## **Hydrostatic Head Method**



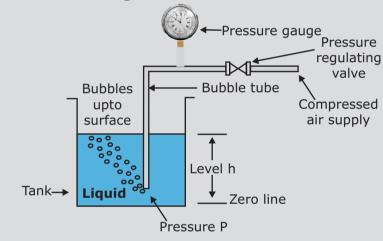
#### **Advantages**

- Simple and cheap
- ! Level can be measure

# **Disadvantages**

- Can not be used with pressurized tanks on site measurement Pressure gauge
- calibrated in level measurement

# **Bubbler or Purge Method**

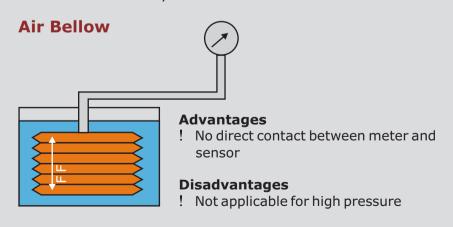


#### Advantages

- Continuous reading providing analog or digital signal
- ! Good accuracy and repeatability

#### **Disadvantages**

- Not suitable for pressurized tanks
- ! Tanks must be freely vented



# **Electrical Methods**

Electrical method sense the level of liquid and provides the proportinate electrical output signals.

- ! Capacitance Level Gauge ! Ultrasonic Level Gauge
- ! Nucleonic Gauge

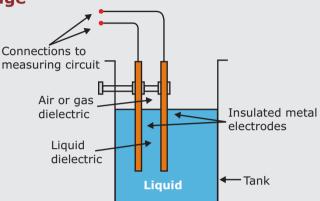
# **Capacitance Level Gauge**

#### **Advantages**

- ! Continues indication and control
- ! Prob material for corrosive fluid are abailable

#### **Disadvantages**

- ! Measurement affected by temperature change
- ! Fluid must have proper dielectric qualitites



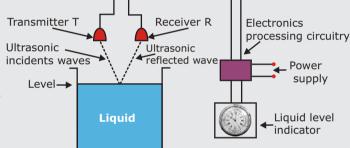
# **Ultrasonic Level Gauge**

#### **Advantages**

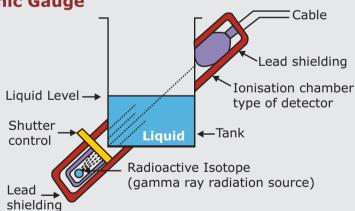
- ! Non contact type of level
- Measurement ! Reliable technique

# **Disadvantages**

! Interference may occur dirt, irregular and slope surface affect accuracy



# **Nucleonic Gauge**



#### **Advantages**

- ! Non contact type of level measurement
- ! Useful on high temperature range

#### **Disadvantages**

- ! Costly
- ! Can change the density of liquid







Electro Hydraulic Trainer







Arduino Development Board



Flow Rate Measurement

Trainer







52106 Electro Pneumatic Trainer Kit



52200 Modular Production /

Manufacturing System



55504 Wind Energy Trainer