



Class: 4th Stage

Subject: Control Lab

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#### **Exp.No.4**

**Exp.Name:- level measurement by bubbler method**

#### **Training Objective:**

To determine liquid level measurement by bubbler method.

#### **- Training Equipment**

No.	Name	notes
1.	Pressure gauge(WC)	600 mm
2.	Pressure sensor	
3.	level tank	
4.	Air Pump	
5.	Air regulator	
6.	Voltmeter	

#### **Theory:-**

In bubbler method a pipe is installed vertical in the vessel with its open end at a point about 5 cm above line. However this end should be dipped in water.

The other end of the pipe is connected to an air supply and to a pressure gauge and electronic sensor. The air supply is so adjusted that the pressure is slightly higher than the pressure due to the high of the liquid in the tank.

This is achieved by regulating air pressure until bubble can be seen slowly leaving the open end of the pipe.



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### Procedure:-

1. Connect to pressure sensor.
2. Select the sensor by selecting rotary 6- position switch at correct location 5<sup>th</sup> location.
3. Insert ¼ SS tube inside the level tank.
4. Connect the out side end of the tube to small vibratory air compressor as well as to the pressure sensor P1 port and to pressure guage of (0-600)mm WC.
5. Now make the compressor and pump motor on and fill the tank up to 400 mm and make the pump off.
6. Now we will get air bubbles after some interval continuously & at 400 mm of water column the WC gauge should show 400 mm.
7. Adjust 2V for 400 mm at the output of signal conditioning circuit using span pot.
8. Repeat the span and zero adjustment 2,3 times till we get 0V for 0 mm and 42V for 400 mm.

NO.	Level in mm	Output voltage /V	Air bubbles
1	0	0	Max
2	100	11	
3	200	21	
4	300	30	
5	400	42	min

### Discussion:-

- 1- What is the use of air supply?
- 2- How can you adjust the air pressure to be higher than the pressure?
- 3- Explain briefly the process of level measurement by bubbles?