Hot wire anemometer

→ A device that is used to measure the velocity of a fluid such as air or gas is called hot wire anemometer.

→ Industrial thermal anemometre is used to monitor velocity in gas flows has two sensors.

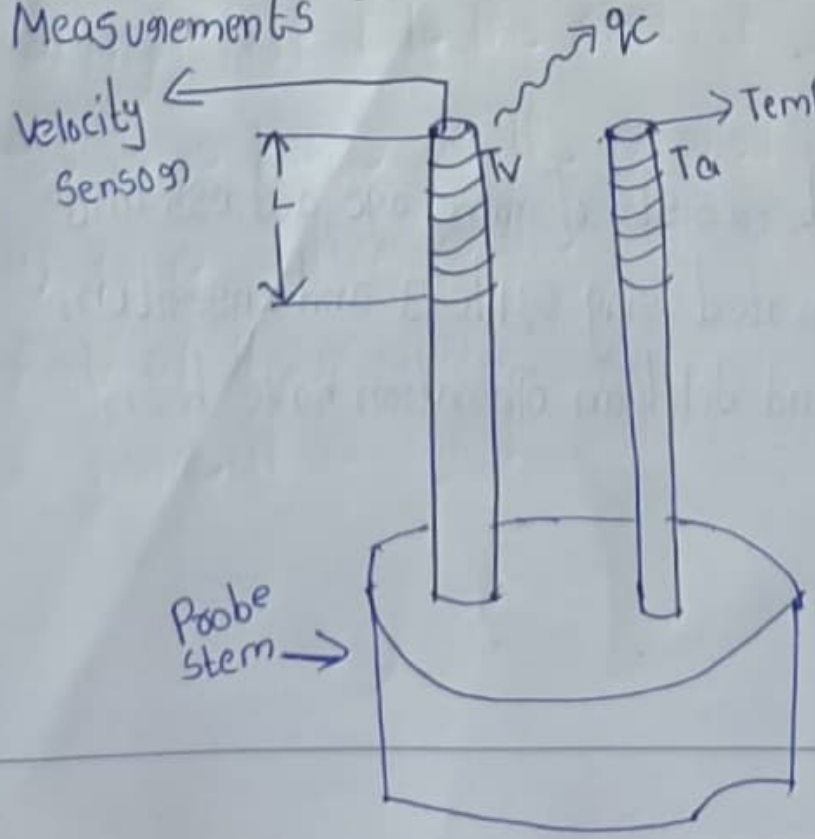
1) Velocity Sensor
2) Temperature Sensor.

→ The Automatical correction of changes in gas temperature is done for in hot wire

→ Both sensors are reference grade Platinum resistance temperature detectors (RTD's)

→ The electric resistance of RTD's increase as temperature increases.

→ they are most commonly used Sensors for accurate temperature Measurements



Working Principle

→ the electric circuit Passes current through velocity sensor
→ Now heat it to the constant differential temperature of the gas ~~temperature~~ $(T_v - T_a)$.
→ T_a is takes as the measured heat.
→ q_c is taken as the cooler gas that contains as it flows Past the sensor.
→ hence it is called constant temperature thermal anemometer.
→ Hot Wire classified into 2 categories.

① Constant current anemometer
② constant temperature "

Constant current:-

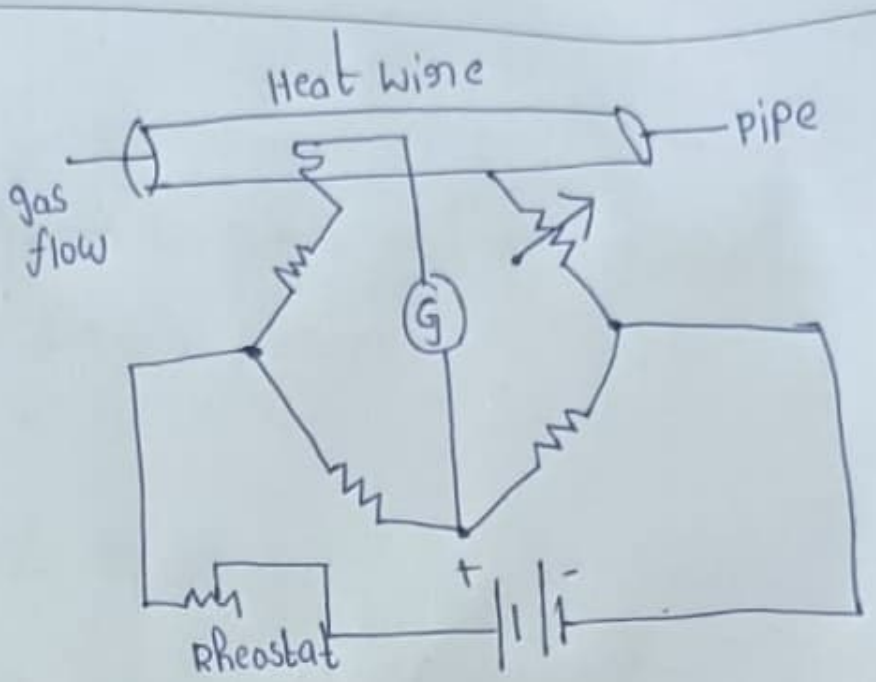
1) the electric circuit Passes constant current through velocity sensor.
2) Now heat it to the constant current.
3) T_a is takes as the measured heat
4) q_c is taken as the cooler gas that contains as it flows Part of the sensor.
5, hence it is called constant current anemometer.

6a. **PROGRAM :**

```
my_list = [1, 2, 3, 4, 5]
sum = 0
for x in my_list:
        sum += x
print(sum)
```

OUTPUT :

15



Constant temp:-

→ the ~~ct~~ constant temp passes through ~~Velocity~~ Temp sensor.
→ Now heat it to the constant temperature
→ Ta is the measured heat
→ qc is taken as the cooler gas that contains as it flows from the sensor
→ hence it is called constant temp anemometer.

Adv
→ less cost
→ spatial seperation
→ signal Analysis.
→ small size
→ Accuracy is good

Disadv
1) high turbulance intensity
→ Signal noise
→ Breaking probe
→ liquid flows.

Applications
① chemical Industry
② Power Industry
③ Drug and food Industry
④ metallic Industry
⑤ Environmental Protection