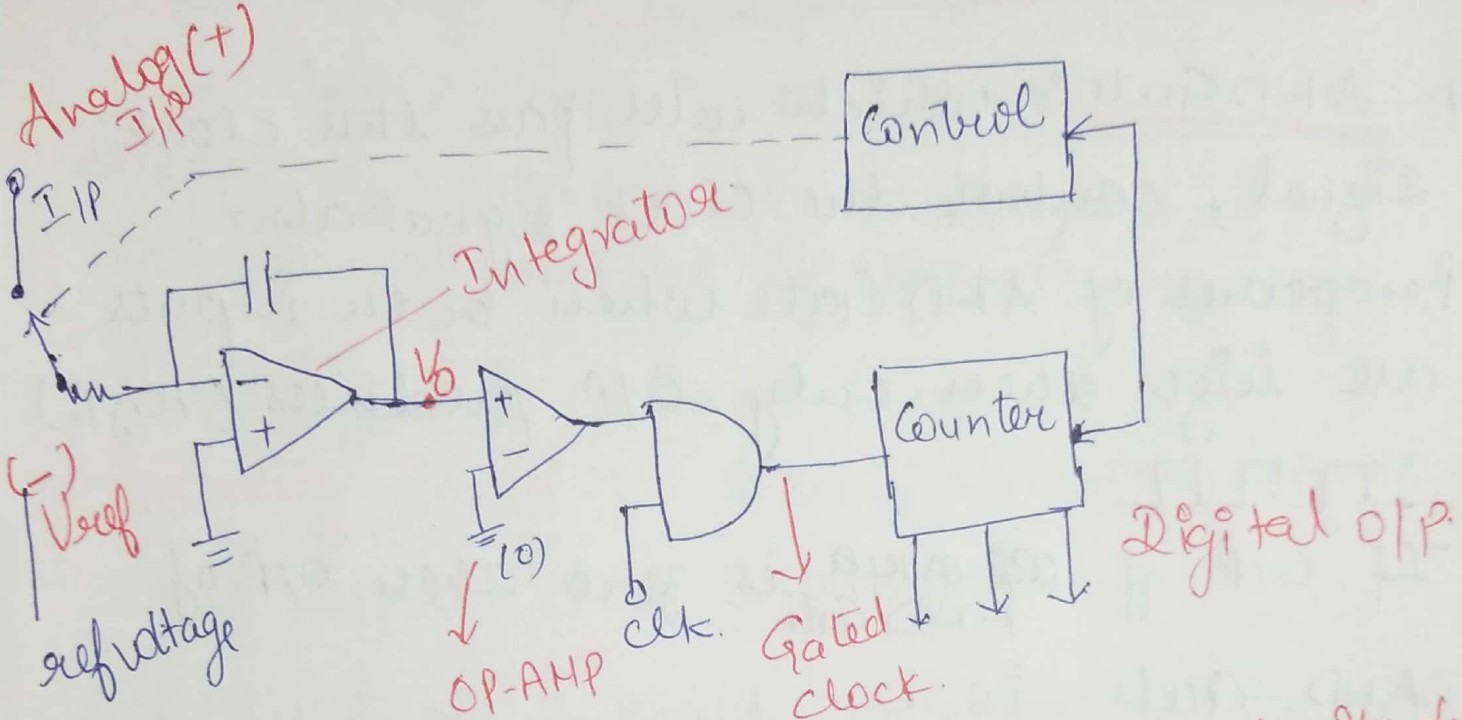


Dual slope A/D Converter :-



Construction :-

- 1. There are two inputs one is analog input which has to be converted into digital value. and second is the reference voltage.
- 2. Integrator : The integrator Op-amp produces an output voltage that is both proportional to the amplitude and duration of the input signal.
$$V_o = \frac{1}{RC} \int_0^t V_{in} dt$$
 Formula
- 3. OP-AMP : This OP-AMP is basically comparator which compare two values. +ve terminal of OP-AMP is connected to the output of Integrator and -ve terminal is ground.
~~AND Gated~~ whenever V_o is greater than 0 then only O/P is equal to 1.

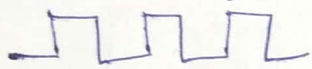
$V_0 > 0 \rightarrow$ O/P is 1

$V_0 < 0 \rightarrow$ O/P is 0

2.26

4. AND Gates which will pass this clock signal, control the clock signal also.

Properties of AND Gate when both inputs are high then only O/P produces (High)



If O/P of ~~OP-AMP~~ AND Gate is zero then O/P of AND Gate is 0.

5. Counter: Counter is going to count n -pulse^{bit} produces O/P (Digital O/P)

6. Input voltage: If I/P utg is greater than reference voltage. $V_{in} > V_{ref}$ then I/P utg switch is connected to integrator if $V_{in} < V_{ref} \rightarrow$ Switch connected to V_{ref} .

• Counter O/P is going to control ~~signal~~ This control ckt. basically control the I/P utg and Ref utg switch. when it reaches max value. exceeded that value then again reaches zero.

2.27

• when it moves to zero the control switch will be activated and move the switch from its position according to the situation.