

8.7  $\pm 5V$  analog quantization  $< 5mV$  what is Minimum A/D resolution A/D converter required?

$$Q = (V_{max} - V_{min}) / 2^N \quad N = \# \text{ of bits}$$

$$50.005 = \frac{10}{2^N} \Rightarrow 2^N = \frac{10}{0.005}$$

$$\Rightarrow 2^N = 2000$$

$$\ln(2^N) = \ln(2000)$$

$$N \ln(2) = \ln(2000)$$

$$N = \frac{\ln(2000)}{\ln(2)}$$


$$N = 10.96$$

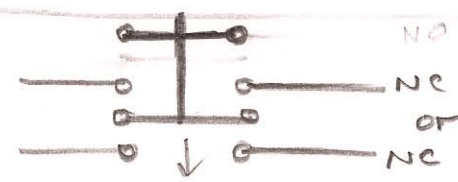
Thus minimum resolution is 11 bit A/D converter

9.1 Draw schematics for each switch in Fig. 9.4

• NO SPST RESET SWITCH 

• SPST Toggle switch 

• NO SPST pushbutton switch 

• NO DPST pushbutton switches 

• SPDT Microswitches 

