

## ADCs and DACs

### ➤ Sampling

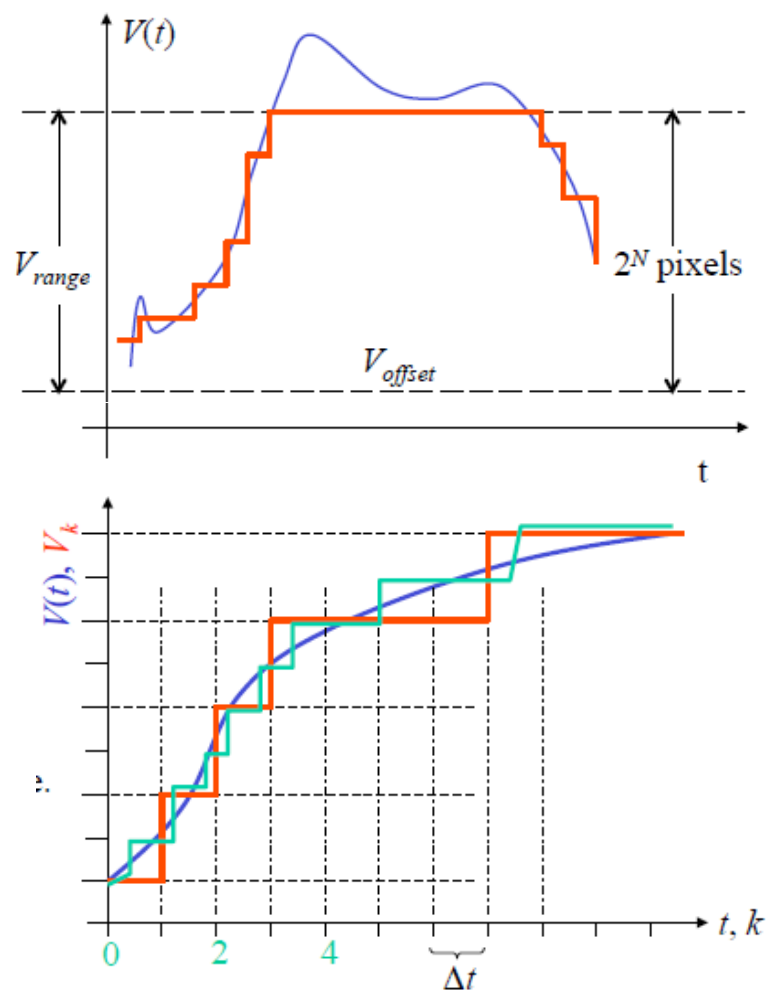
- $f_{\text{samp}} > 2f_{\text{max}}$
- Nyquist theorem

### ➤ Resolution

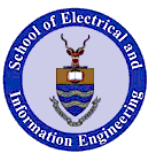
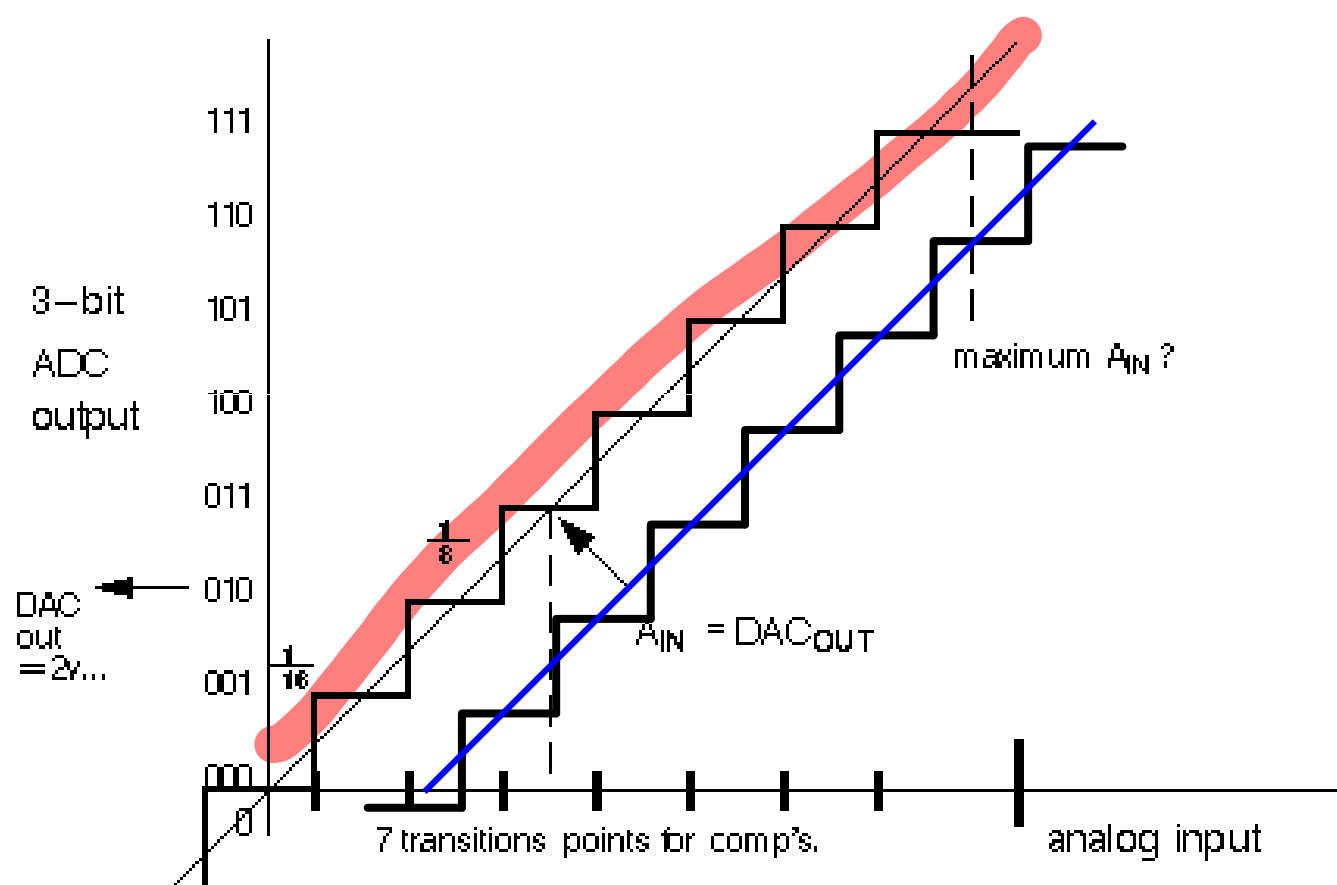
- $V_{\text{range}}/2^N$

### ➤ Error

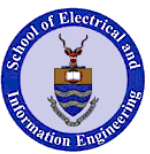
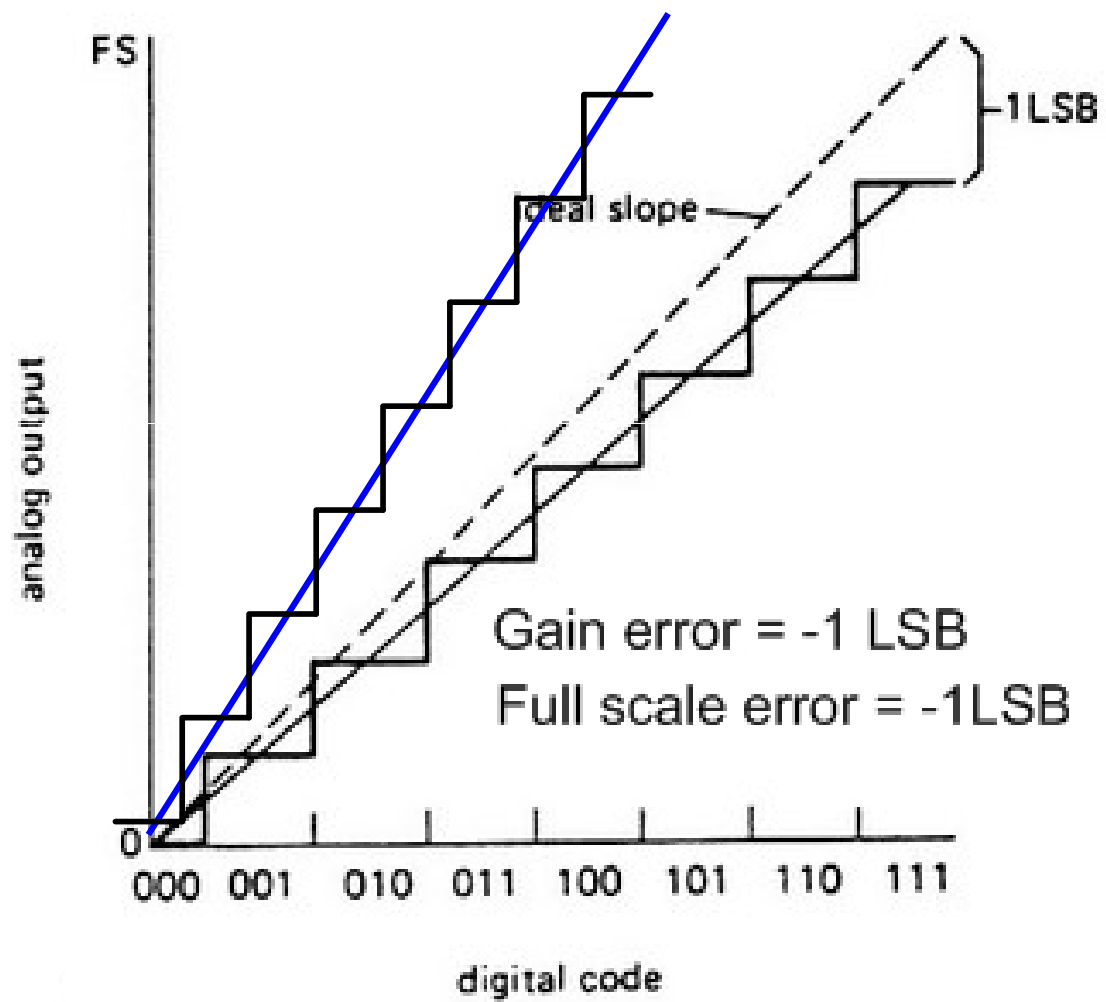
- Usually less than half the value of the LSB
- 10 bit –  $1/(2 \cdot 1024) = 0.05\%$



## ADCs and DACs - Offset



## ADCs and DACs – gain error



# ADCs and DACs – missing code

