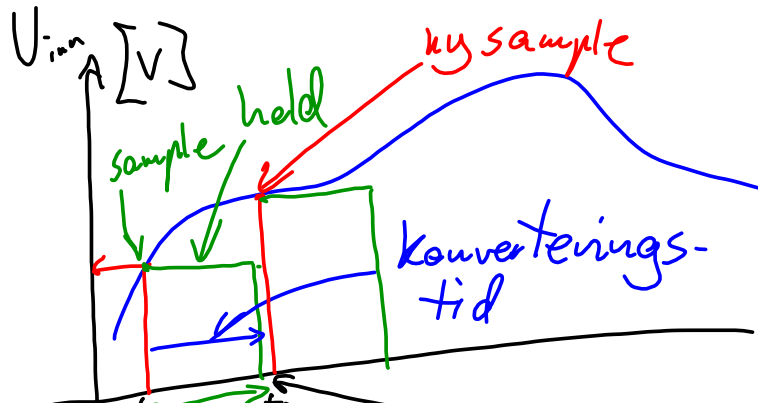
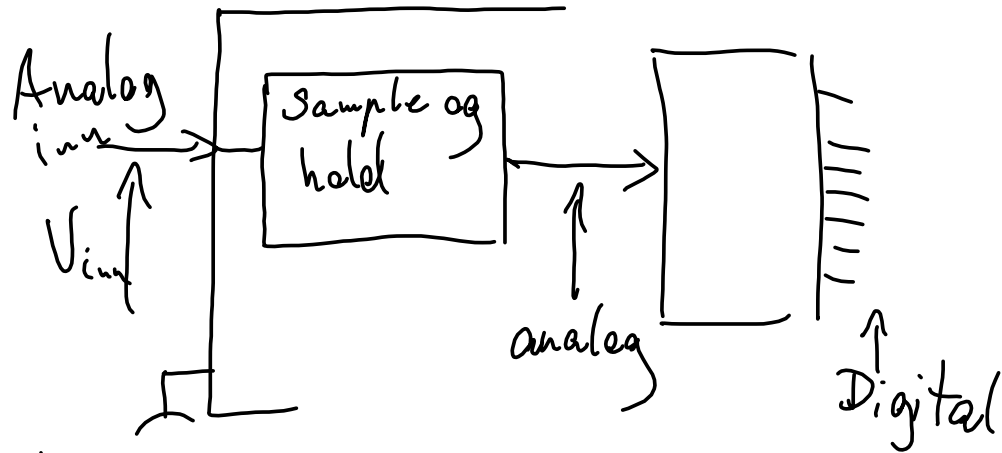


ADC

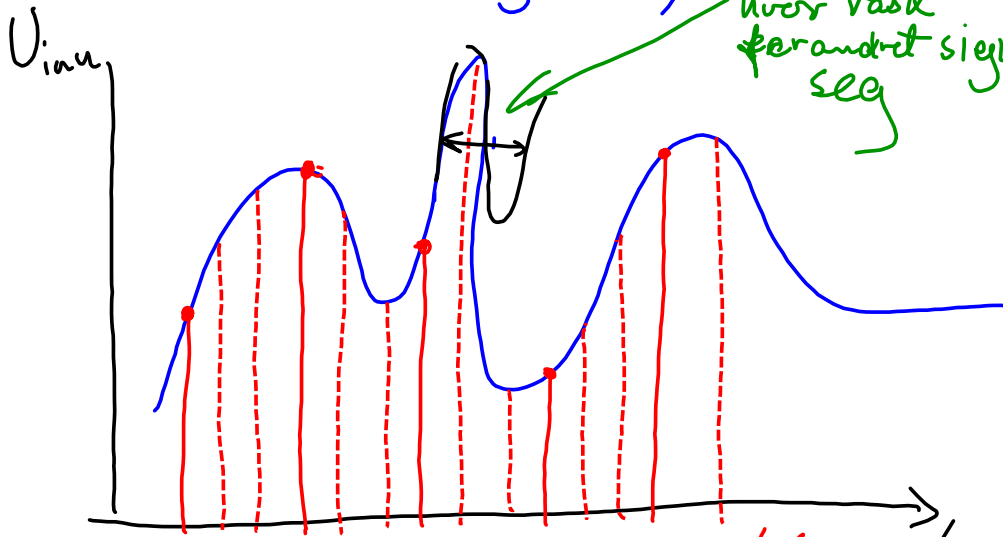


Konvertering
fra analog
til digital
verdi

Digital verdi for
punktprøve ved t_1
er ferdig

Hvor ofte må det analoge signalet
 punketprøves? (← afhængig af den
 højeste frekvens i
 signalet)

hvor vask
 ændret signalet
 ser

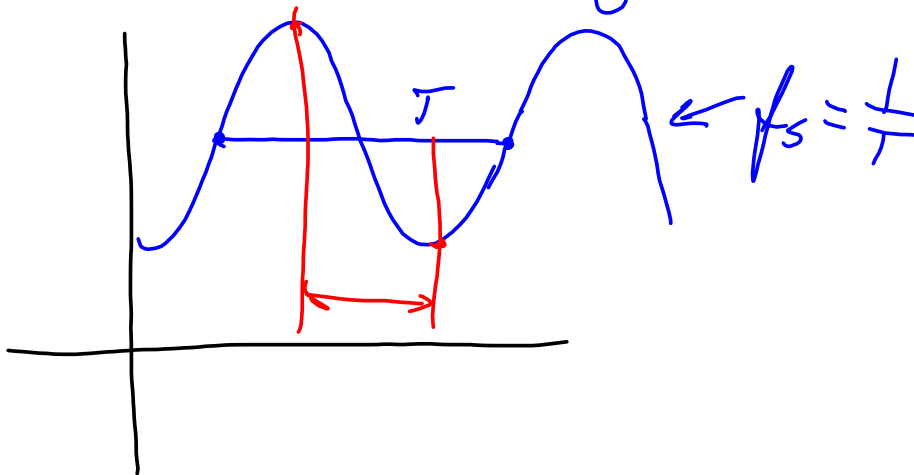


t_p : tiden mellem hver punketprøving

$f_p = \frac{1}{t_p}$ = punketprøvinges frekvens

$$f_r \geq 2 \cdot f_s$$

den højeste frekvens
 i signalet



Finne ut den høyeste frekvensen i signalet: f_s

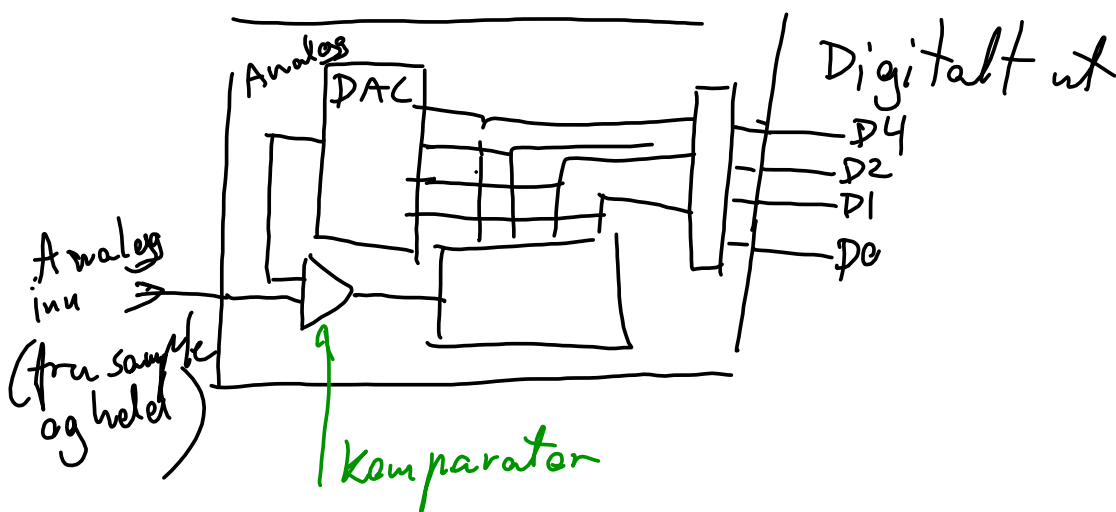
Velg en ADC som er rask nok
(liten konverteringstid)

$$2 \cdot f_s \leq f_p$$

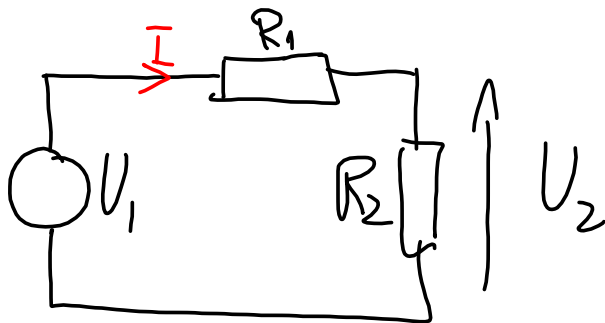
Konverteringstid
→ hvordan foregår konverteringen

Det finnes flere typer ADC
↳ hvordan konverteringen gjøres

Successive Approximation ADC



Spenningsdeler



$$I = \frac{U_1}{R_1 + R_2} \quad U_2 = I \cdot R_2$$

$$U_2 = \frac{U_1}{R_1 + R_2} \cdot R_2 = U_1 \cdot \frac{R_2}{(R_1 + R_2)}$$

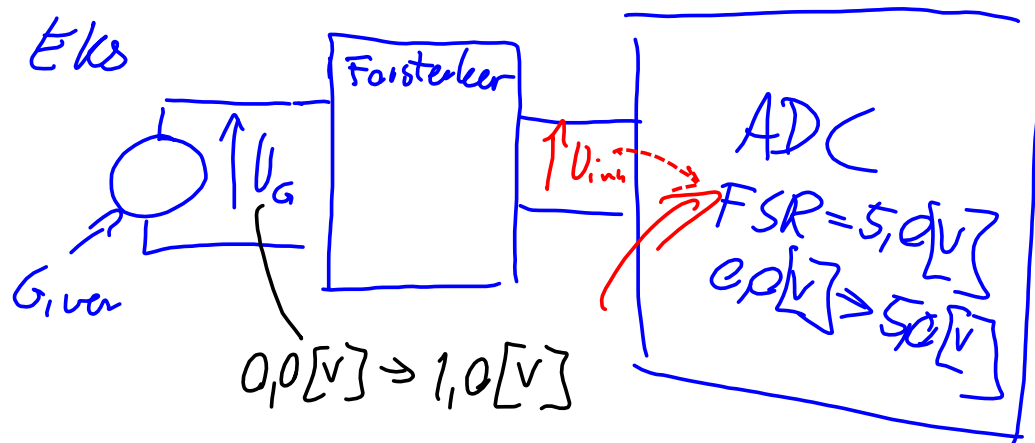
$$\frac{U_2}{U_1} = \frac{R_2}{R_1 + R_2}$$

U_2 er en del av spenningen U_1

Ekse: $R_2 = R_1 = 1000 \Omega$ $U_1 = 10,0 \text{ V}$

$$U_2 = U_1 \cdot \frac{R_1}{R_1 + R_2} = 10,0 [\text{V}] \cdot \frac{1000 [\Omega]}{2000 [\Omega]} = 5,0 \text{ V}$$

Forsterker



U_G må forsterkes

$$U_G = 0,0[V] \Rightarrow U_{inn} = 0,0[V]$$

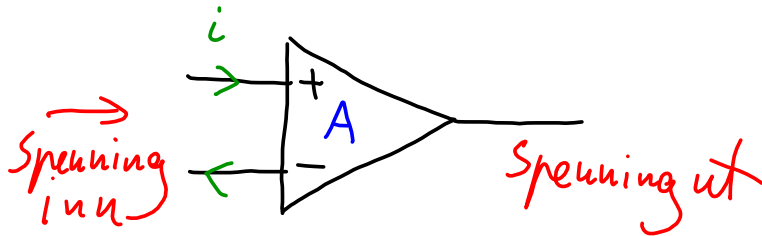
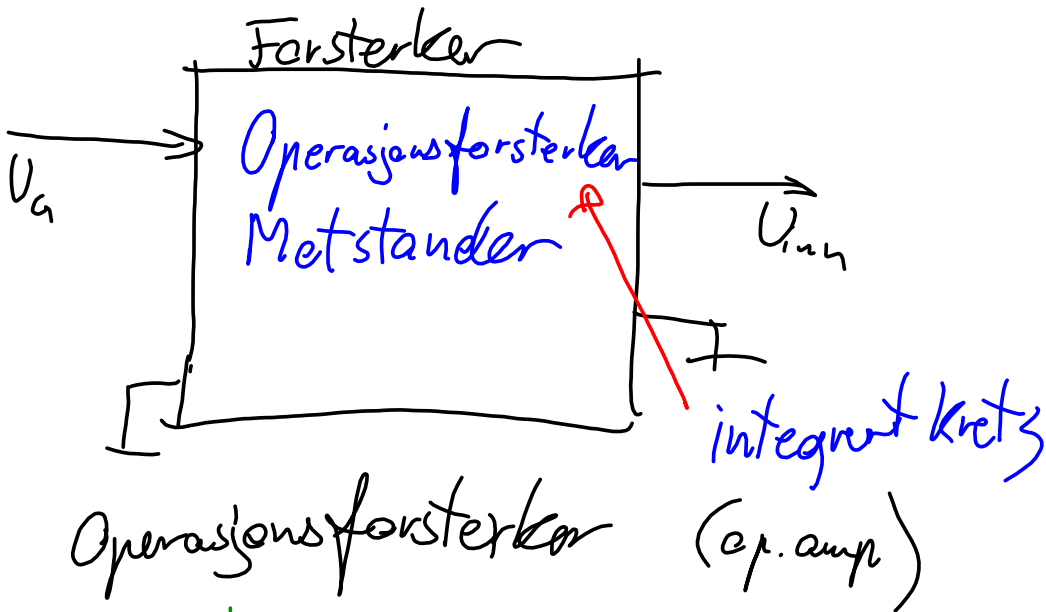
$$U_G = 1,0[V] \Rightarrow U_{inn} = 5,0[V]$$

Forsterkningen : X [ggv]

$$U_{inn} = X \cdot U_G$$

$$X = \frac{U_{inn}}{U_G} = \frac{5,0[V]}{1,0[V]} = 5,0$$

Forsterkere



A : forsterkning i op. amp
er ∞ (uendelig stor)

i : ~ 0 (ingen strøm inn i op. amp)

