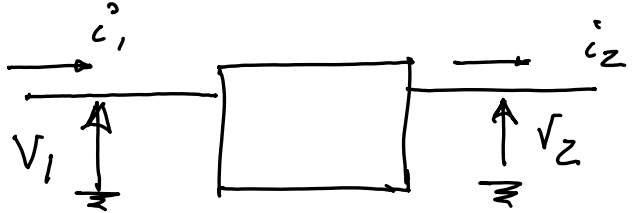
Convertidores DC/DC



Si la eficiencia es 100%

$$V_1 i_1 = V_2 i_2 \quad (P_1 = P_2)$$

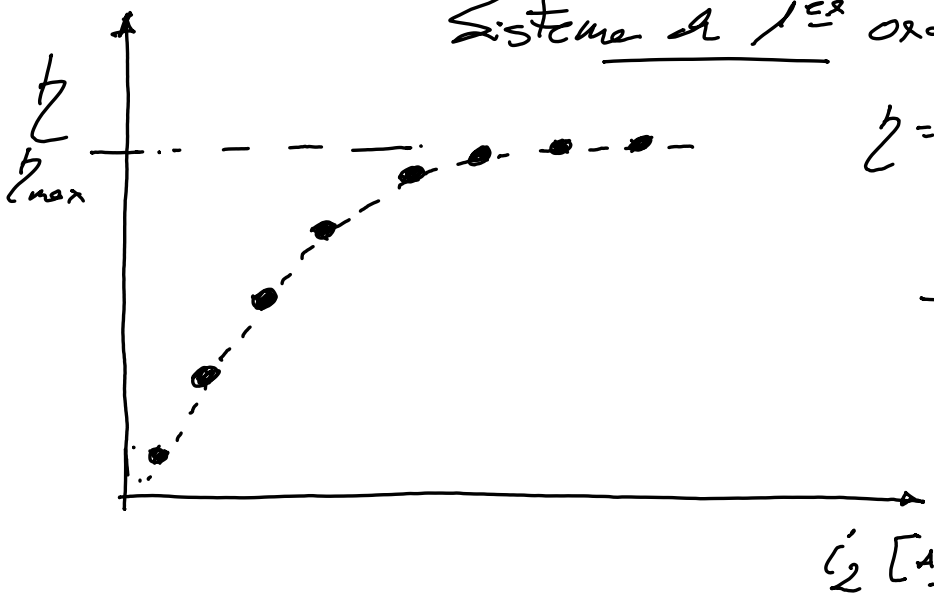
Si la eficiencia es distinta del 100% $\eta < 1$

$$\eta = \frac{P_2}{P_1} = \frac{V_2 i_2}{V_1 i_1} \Rightarrow i_1 = \frac{1}{\eta}\left(\frac{V_2}{V_1}\right) i_2$$

Cálculo de consumo desde la carga

$$\eta = f(i_2)$$

Sistema di 1° ordine



$$h = h_{max}\left(1 - e^{-i_2/\tau}\right)$$

$$-\frac{i_2}{\tau} = \ln\left(1 - \frac{h}{h_{max}}\right)$$

Reso

$$\ln\left(1 - \frac{h}{h_{max}}\right) = f(i_2)$$

$$f(i_2) = a_1 i_2 \qquad 1^{\text{o}} \text{ ord.} \qquad \tau = -\frac{1}{a_1}$$

$$f(i_2) = a_1 i_2 + a_2 i_2^2 \qquad 2^{\text{o}} \text{ ord}$$

$$f(i_2) = a_1 i_2 + a_2 i_2^2 + a_3 i_2^3 \qquad 3^{\text{o}} \text{ ord}$$