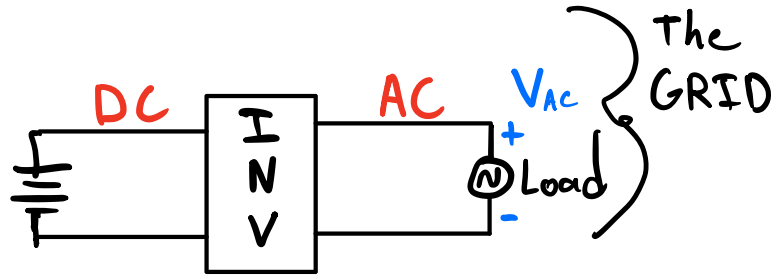
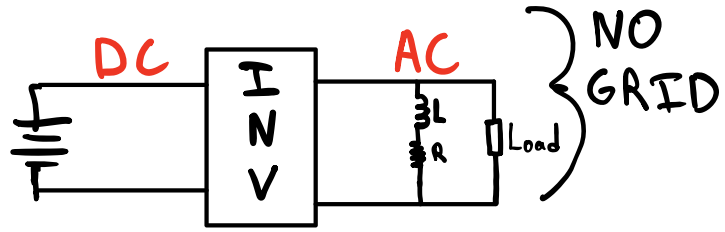
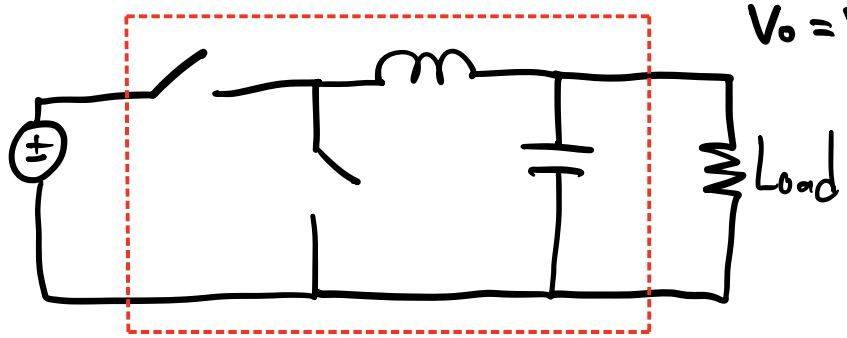
DC → AC Inverters





Can I use a BUCK Converter as INV

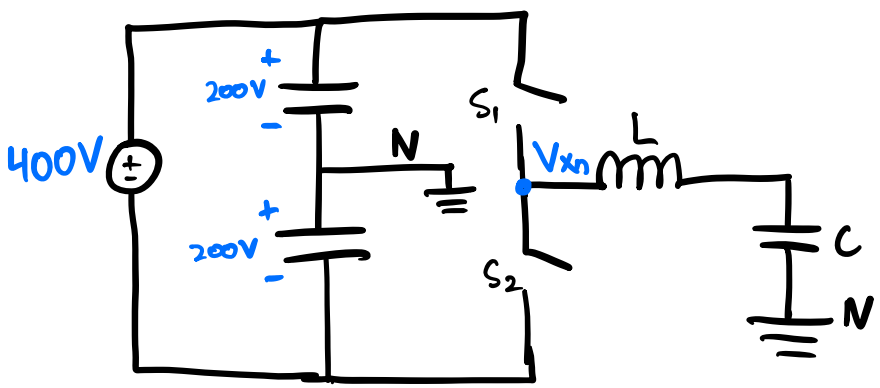


$V_o = V_i \cdot D$

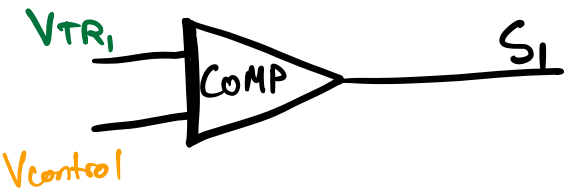
NO → Use a Half-Bridge Instead

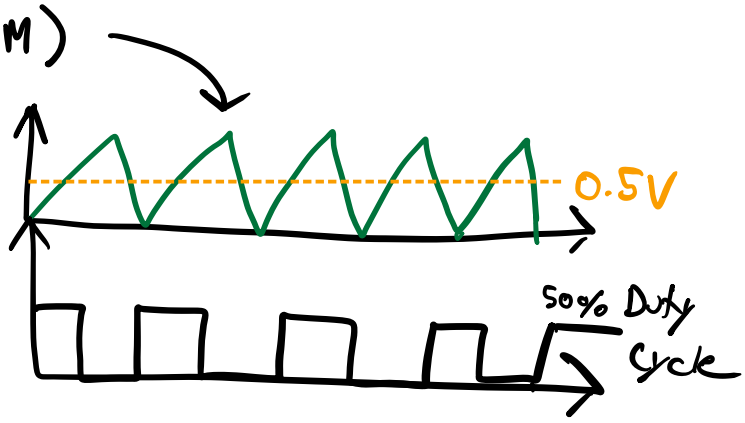
S_1 is "ON" $V_{xn} = 200V$

S_2 is "ON" $V_{xn} = -200V$



Using a Comparator (For PWM)





Deriving $V_o(D)$:

$$\langle V_o \rangle = \frac{V_{control}}{V_{p(triangle)}} \cdot \frac{V_{in}}{2}$$

$$V_{control} = V_{control}\, Sin(\omega_1 t)$$

$$\langle V_o \rangle = \frac{\hat{V}_{control}}{\hat{V}_{triangle}} \cdot Sin(\omega_1 t) \cdot \frac{V_i}{2}$$

$$= m_a \cdot \sin(\omega_1 t) \cdot \frac{V_i}{2}$$

m_a – modulation Index