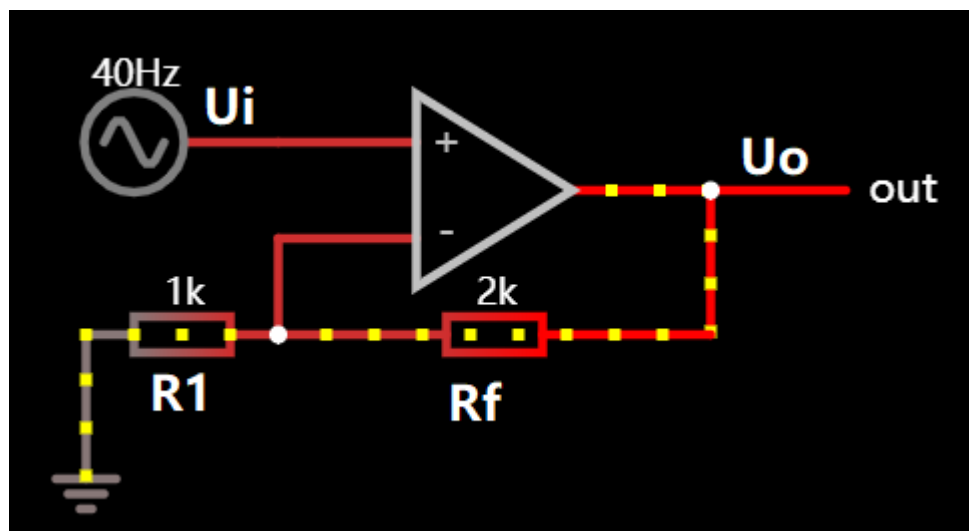


基本计算原则

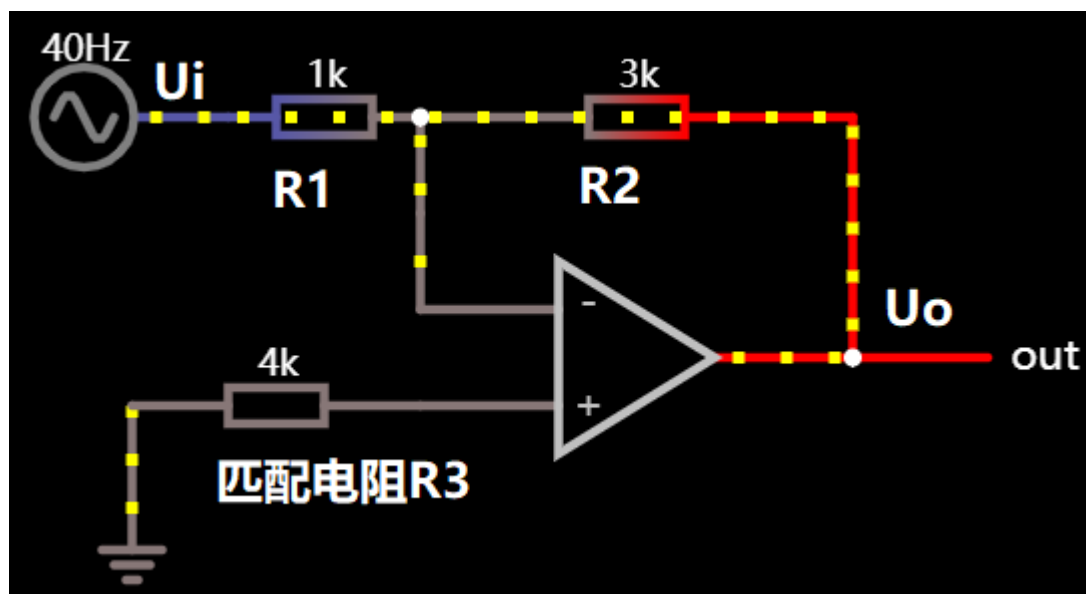
- $U_+ = U_- = U_i$
- $I_+ = I_- = 0$

同相比例放大器



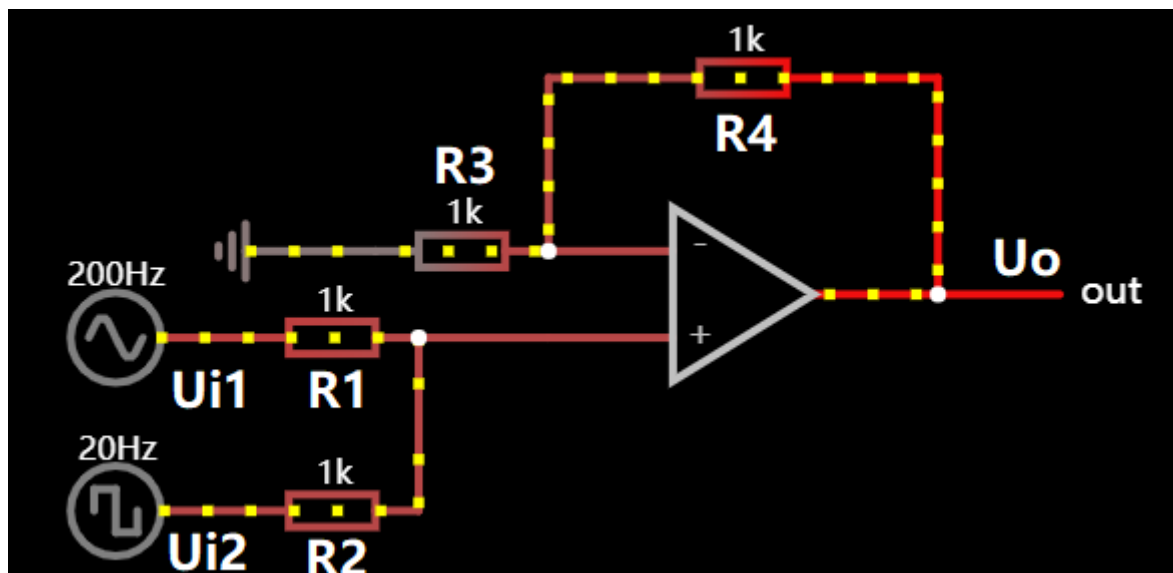
- $(0 - U_-)/R1 = (U_- - U_o)/R_f$
- $U_o = (1 + R_f/R1)U_i$

反相比例放大器

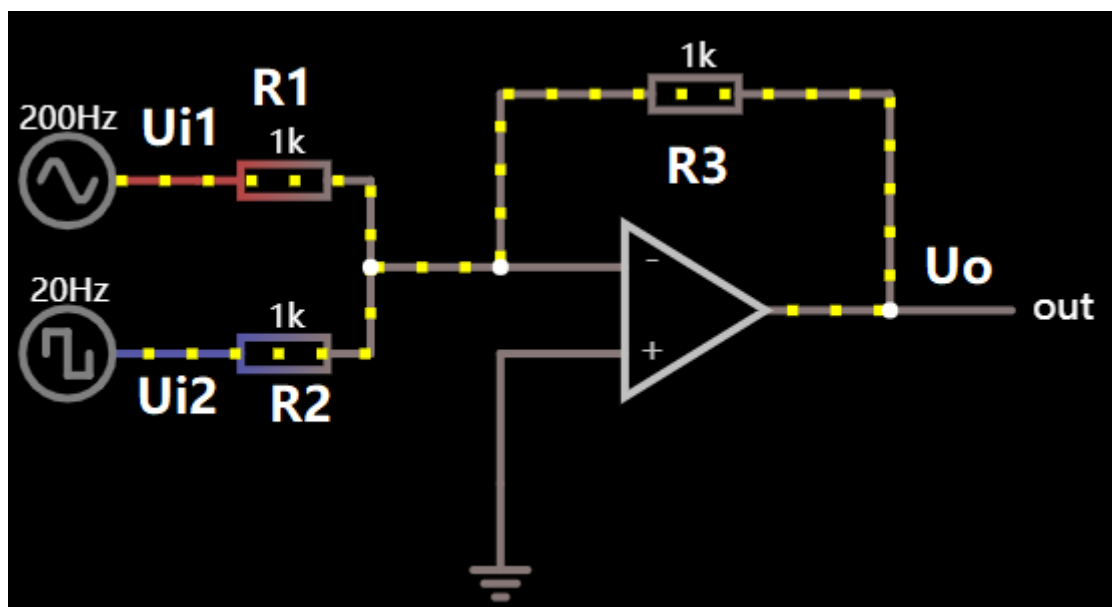


- $U_o = -(R2/R1)U_i$

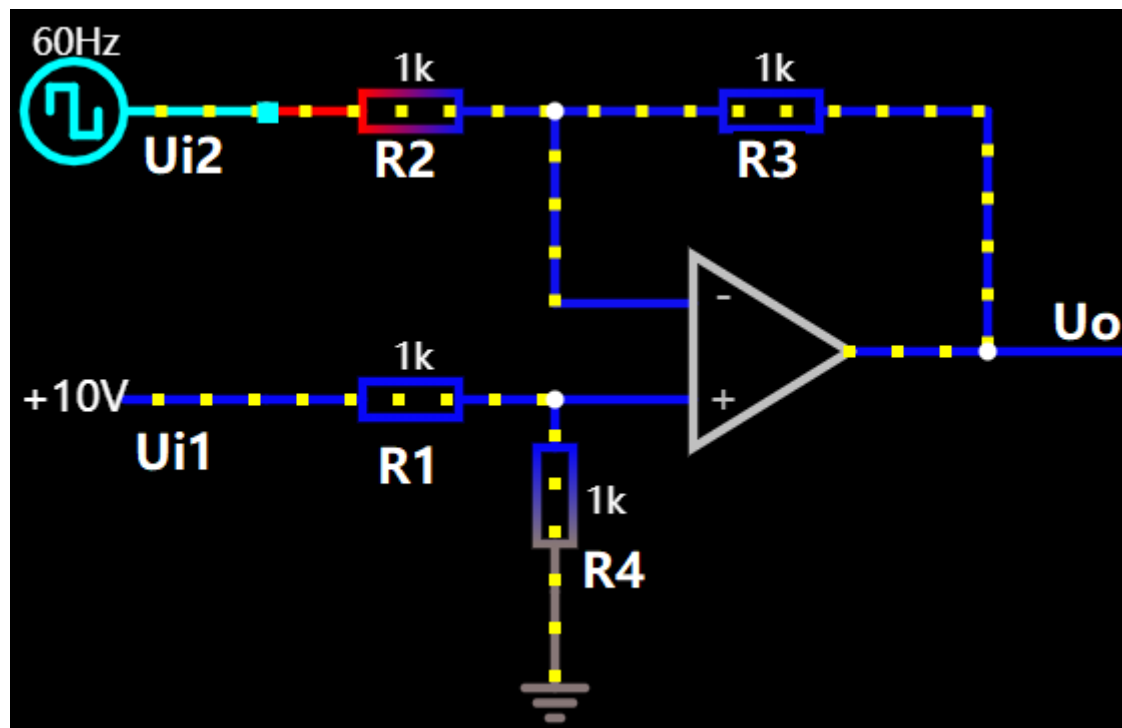
加法器



- 叠加
- $U_o = [(1 + R_4/R_3) / (R_1 + R_2)] ((R_2 \cdot U_{i1}) + (R_1 \cdot U_{i2}))$

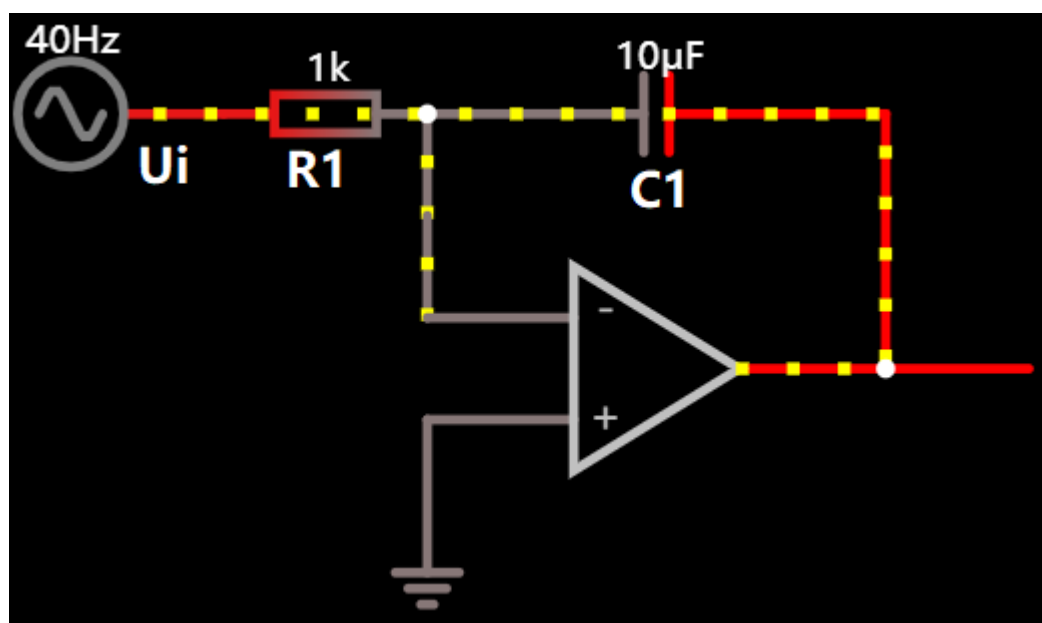


减法器



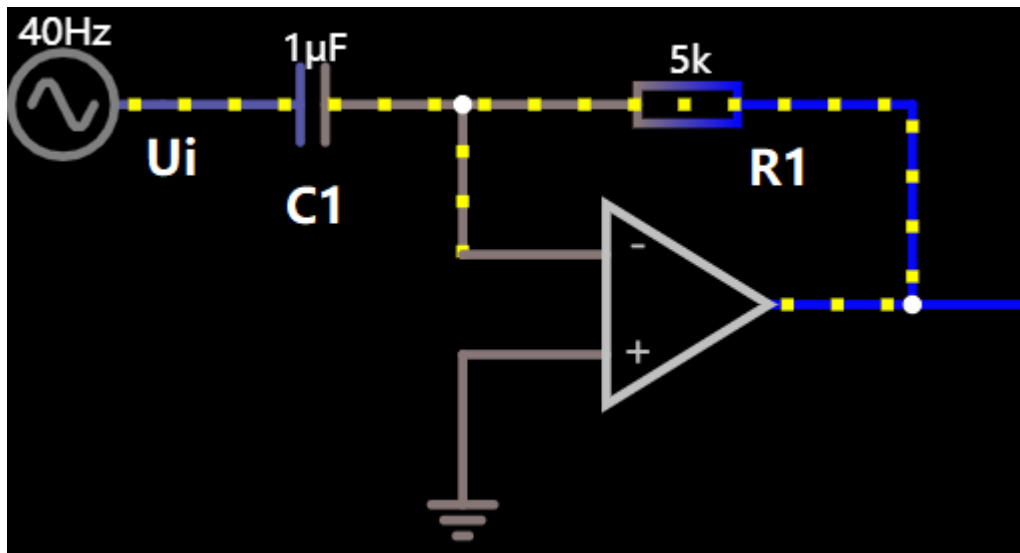
- 叠加
- $U_o = (R_2 + R_3/R_2) * (R_4/R_1 + R_4) * U_{i1} - (R_3/R_2) * U_{i2}$

积分器

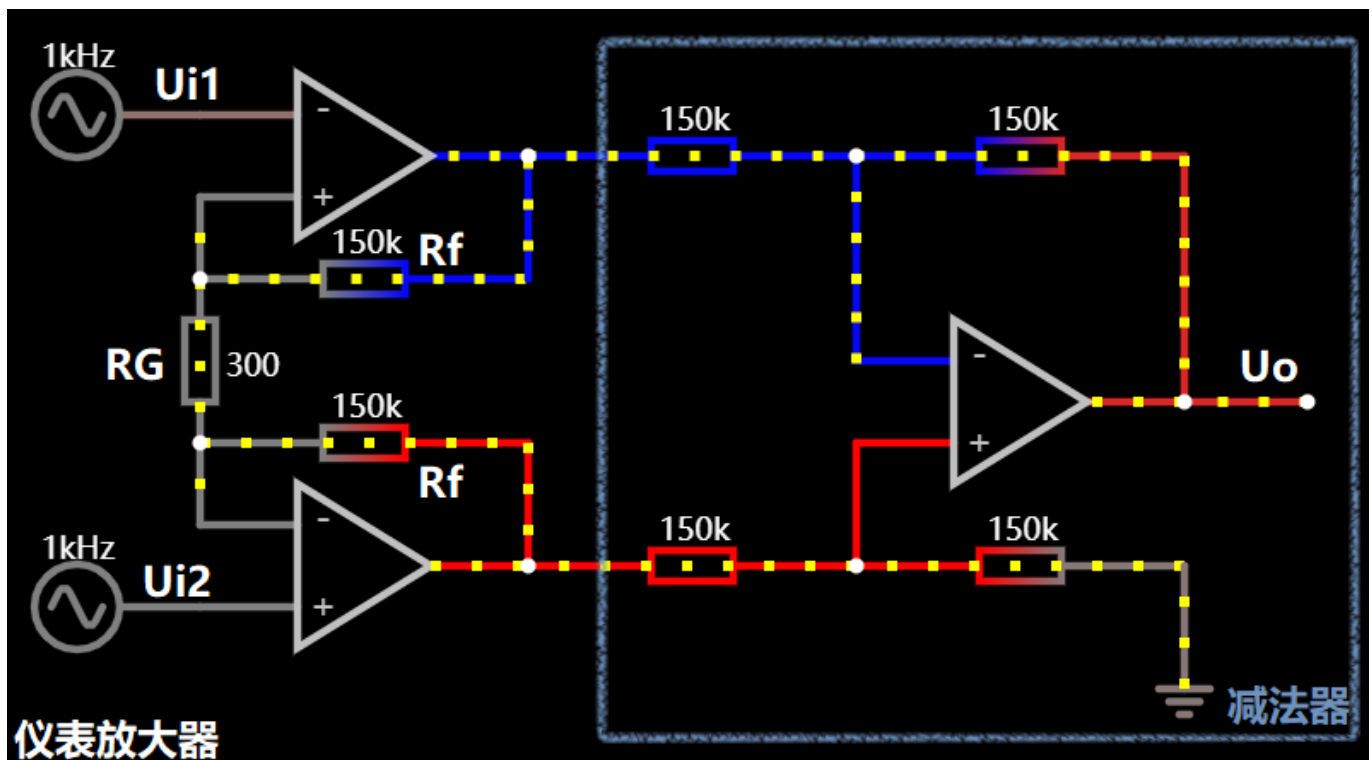


- $U_o = -U_c = -q/C = -(\int i dt) / C$
- $i = U_i / R$
- $\Rightarrow U_o = -1/RC \int U_i dt$
- (例外：差动积分)

微分器



仪表放大器



- $U_{i2} - U_{i1} = I \cdot (2R_f + R_G)$
- $I = (U_{i2} - U_{i1}) / R_G$
- $U_o = (1 + 2R_f / R_G)(U_{i2} - U_{i1})$