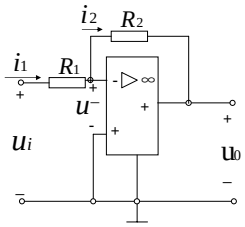
例5－1 **倒向比例器**



由虚断 $i_1=i_2$

$$\frac{u_i-u^-}{R_1}=\frac{u^--u_0}{R_2}$$

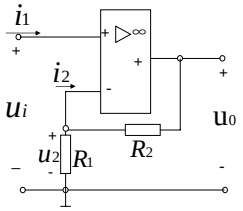
由虚短 $u^-=0$

$$\frac{u_i}{R_1}=-\frac{u_0}{R_2}$$

$$\frac{u_0}{u_i}=-\frac{R_2}{R_1}$$

1

例5－2 **非倒向比例器**



由虚断 $i_1=i_2=0$

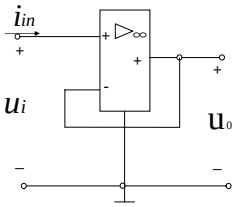
$$u_2=\frac{R_1}{R_1+R_2}u_0$$

由虚短 $u_i=u_2=\frac{u_0R_1}{R_1+R_2}$

$$\frac{u_0}{u_i}=1+\frac{R_2}{R_1}$$

2

例5－3 **电压跟随器**



$$u^+=u^-=u_0$$

$$u_i=u_0$$

$$i_{in}=0$$

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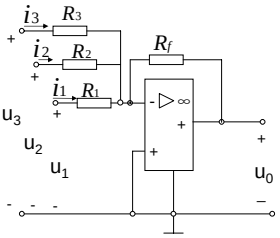
例5-4 **加法器**



$$-\frac{1}{R_f}u_o=\frac{u_1}{R_1}+\frac{u_2}{R_2}+\frac{u_3}{R_3}$$

$$u_o=-R_f\left(\frac{u_1}{R_1}+\frac{u_2}{R_2}+\frac{u_3}{R_3}\right)$$

若 $R_1=R_2=R_3=R_f$

则 $u_0=-(u_1+u_2+u_3)$

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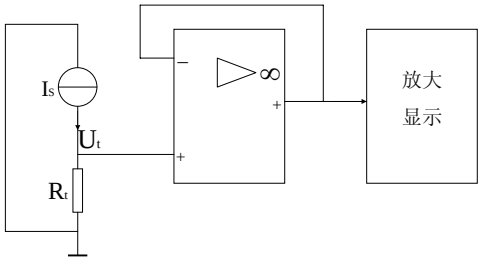
例5-5 测温电路



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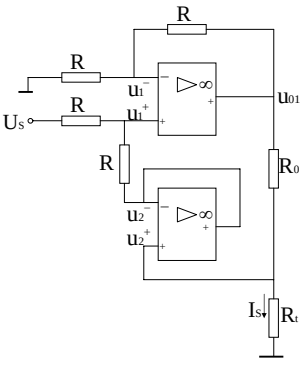
恒流源电路试证 $I_S=\frac{U_S}{R_0}$



$$I_S=\frac{u_{01}-u_2^+}{R_0}$$

$$u_2^+=u_2^-$$

$$u_1^+=U_S-\frac{U_S-u_2^-}{R+R}R$$

$$=\frac{1}{2}(U_S+u_2^+)$$

$$u_1^+=u_1^-$$

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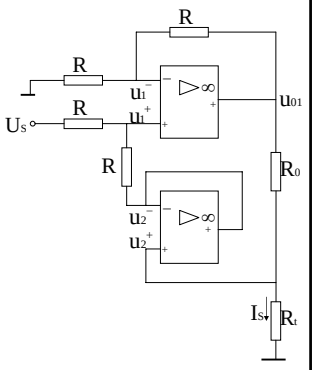
$$u_1^- = \frac{1}{2}(U_S + u_2^+)$$

$$u_1^- = \frac{u_{01}}{R+R}R = \frac{1}{2}u_{01}$$

$$u_{01} = 2u_1^- = U_S + u_2^+$$

$$I_S = \frac{u_{01} - u_2^+}{R_0} = \frac{U_S}{R_0}$$



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