

$$I_q = \frac{U_q}{R_i}$$

$$I_{q_{ers}} = I_{q_1} + I_{q_2} + I_{q_3} = \sum_{k=1}^n I_{q_k} = \sum_{k=1}^n \frac{U_{q_k}}{R_{i_k}}$$

$$I_{q_{ers}} = \frac{U_{q1}}{R_{i1}} + \frac{U_{q2}}{R_{i2}} + \frac{U_{q3}}{R_{i3}}$$

$$R_{i_{ers}} = R_{i1} \parallel R_{i2} \parallel R_{i3}$$

$$R_{i_{ers}} = \frac{1}{\sum_{k=1}^n \frac{1}{R_{i_k}}}$$

$$U_{q_{ers}} = I_{q_{ers}} + R_{ers}$$