

$$9.4 \quad P = 250 \text{ W} \quad I = 5 \text{ A}$$

$$U = \frac{P}{I} = \frac{250}{5} = 50 \text{ V}$$

$$9.5 \quad P = 65 \text{ W} \quad I = 0,7 \text{ A}$$

$$U = \frac{P}{I} = \frac{65}{0,7} = 92,9 \text{ V}$$

$$9.6 \quad R = 1 \text{ k}\Omega \quad U = 230 \text{ V}$$

$$I = \frac{U}{R} = \frac{230}{1 \text{ k}} = 230 \text{ mA}$$

$$P = U \cdot I = 230 \cdot 230 \text{ mA} = 52,9 \text{ W}$$

$$P = \frac{U^2}{R} = \frac{230^2}{1 \text{ k}} = 52,9 \text{ W}$$

$$9.7 \quad U = 230V \quad P = 1kW$$

$$I = \frac{P}{U} = \frac{1000}{230} = 4,3 \text{ A}$$

$$R = \frac{U}{I} = \frac{230}{4,3} = 53,5 \Omega$$

$$P = \frac{U^2}{R} \quad | \cdot R$$

$$P \cdot R = U^2 \quad | : P$$

$$R = \frac{U^2}{P} = \frac{230^2}{1000} = 53,5 \Omega$$

$$9.8 \quad U = 230V \quad P = 300W$$

$$U_2 = 115V$$

Beitrieb an 230V:

$$I = \frac{P}{U} = \frac{300}{230} = 1,3A$$

$$R = \frac{U}{I} = \frac{230}{1,3} = 177 \Omega$$

Widerstand ändert sich nicht!

$$P = \frac{U^2}{R} = \frac{115^2}{177} = 75W$$

$$9.10 \quad R = 1,6 \text{ M}\Omega \quad I = 0,32 \text{ mA}$$

$$U = I \cdot R = 0,32 \text{ mA} \cdot 1,6 \text{ M} = 512 \text{ V}$$

$$P = U \cdot I = 512 \cdot 0,32 \text{ mA} = 0,164 \text{ W}$$

$$P = I^2 \cdot R = 0,32 \text{ mA}^2 \cdot 1,6 \text{ M} = 0,16 \text{ W}$$

$$9.11 \quad R = 0,15 \Omega \quad I = 30 \text{ A}$$

$$U = I \cdot R = 30 \cdot 0,15 = 4,5 \text{ V}$$

$$P = I^2 \cdot R = 30^2 \cdot 0,15 = 135 \text{ W}$$

$$9.16 \quad Al \quad A = 100 \times 10 \text{ mm}^2$$

$$l = 16 \text{ m}$$

$$I = 1500 \text{ A}$$

$$A = b \cdot h = 100 \cdot 10 = 1000 \text{ mm}^2$$

$$R_L = \frac{z \cdot l}{\gamma \cdot A} = \frac{2 \cdot 16}{36 \cdot 1000} = 0,8 \text{ m } \Omega$$

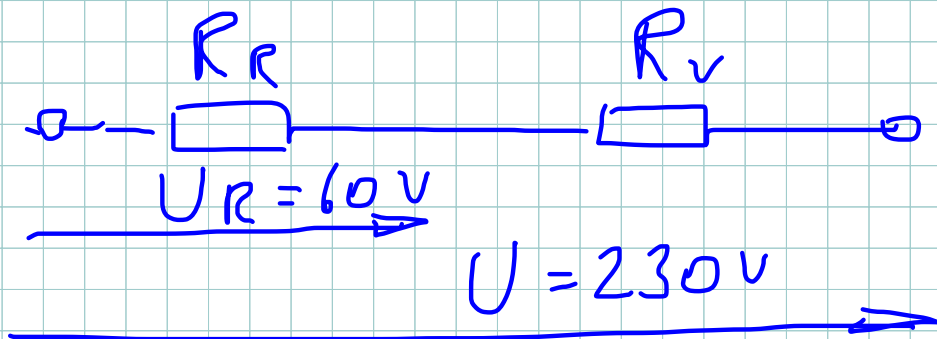
$$P = \underline{I}^2 \cdot R = 1500^2 \cdot 0,8 \text{ m} = 2000 \text{ W}$$

$$S = \frac{I}{A} = \frac{1500}{1000} = 1,5 \frac{\text{A}}{\text{mm}^2}$$

$$9.20 \quad U = 230 \text{ V}$$

$$U_R = 60 \text{ V} \quad R_R = 14,8 \text{ k}\Omega$$

Relais



$$U_V = U - U_R = 230 - 60 = 170 \text{ V}$$

$$I = \frac{U_R}{R_R} = \frac{60}{14,8 \text{ k}} = 0,0041 \text{ A} = 4,1 \text{ mA}$$

$$R_V = \frac{U_V}{I} = \frac{170}{4,1 \text{ mA}} = 41,46 \text{ k}\Omega$$

$$P_V = U_V \cdot I = 170 \cdot 4,1 \text{ mA} = 697 \text{ mW}$$

\Rightarrow $47 \text{ k}\Omega$
 1 W 5% } $0,09 \text{ €}$
Stück