

$$p = ui$$

$$P = \frac{1}{T} \int_0^T ui \, dt = \overline{ui}$$

$$u = \hat{u} \sin(\omega t + \varphi_u)$$

$$i = \hat{i} \sin(\omega t + \varphi_i)$$

$$\varphi_u - \varphi_i = \varphi$$

$$p = UI \cos \varphi - UI \cos(2\omega t + \varphi_u + \varphi_i)$$

$$P = UI \cos \varphi$$

$$P = \frac{1}{2} \operatorname{Re}\{\underline{U}\underline{I}^*\}$$

$$\underline{U} = \hat{u} e^{j\varphi_u}$$

$$\underline{I} = \hat{i} e^{j\varphi_i}$$

$$\underline{I}^* = \hat{i} e^{-j\varphi_i}$$

$$S = UI$$

$$Q = \sqrt{S^2 - P^2}$$

$$Q = UI \sin \varphi$$

$$Q = \frac{1}{2} \operatorname{Im}\{\underline{U}\underline{I}^*\}$$

faktor\_moci

$$\lambda = \frac{P}{S}$$

Merjenje moči pri enosm. toku in nap.:

$$R_B \gg R_A$$

$$P_i = UI + I_A^2 R_A$$

$$P = U_V I_A - I_A^2 R_A$$

$$E = P_i - P = I_A^2 R_A$$

$$R_B \ll R_V$$

$$P_i = UI + \frac{U_V^2}{R_V}$$

$$P = U_V I_A - \frac{U_V^2}{R_V}$$

$$E = P_i - P = \frac{U_V^2}{R_V}$$

Amplitudno-širinska modulacija:

$$t_a = \frac{2U_r C}{I_r - i}$$

$$t_b = \frac{2U_r C}{I_r + i}$$

$$\overline{U} = \frac{t_a u + t_b (-u)}{t_a + t_b} = \frac{1}{I_r} \overline{ui} = \frac{1}{I_r} P$$

Hallov\_mnozilnik :

$$u_H = \frac{1}{ned} i_k B(t) = k \cdot ui = k \cdot p$$

*Digital. postop. merj. moci :*

$$P = \frac{1}{NT_s} \sum_{j=0}^{N-1} U_j I_j T_s = \frac{1}{N} \sum_{j=0}^{N-1} U_j I_j$$

Merjenje delovne moči pri sinusnem toku in napetosti:

*Metoda treh V – metrov :*

$$U_1^2 = U^2 + U_0^2 + 2UU_0 \cos \varphi$$

$$P = UI \cos \varphi = U \frac{U_0}{R_N} \frac{U_1^2 - U^2 - U_0^2}{2UU_0} = \frac{U_1^2 - U^2 - U_0^2}{2R_N}$$

*Metoda trh A – metrov :*

$$I_1^2 = I^2 + I_0^2 + 2II_0 \cos \varphi$$

$$P = \frac{R_N}{2} (I_1^2 - I^2 - I_0^2)$$

Merjenje delov. moči v trif. sist.:

$$P = \frac{1}{2} \operatorname{Re} \{ \underline{U}_A \underline{I}_1^* + \underline{U}_B \underline{I}_2^* + \underline{U}_C \underline{I}_3^* \}$$

$$\underline{I}_3^* = -(\underline{I}_1^* + \underline{I}_2^*)$$

$$P = \frac{1}{2} \operatorname{Re} \{ (\underline{U}_A - \underline{U}_C) \underline{I}_1^* + (\underline{U}_B - \underline{U}_C) \underline{I}_2^* \}$$

$$Q = \frac{1}{2} \operatorname{Im} \{ \underline{U}_A \underline{I}_1^* + \underline{U}_B \underline{I}_2^* + \underline{U}_C \underline{I}_3^* \}$$

$$Q = \frac{1}{2} \operatorname{Im} \{ (\underline{U}_{1N} - \underline{U}_{3N}) \underline{I}_1^* + (\underline{U}_{2N} - \underline{U}_{3N}) \underline{I}_2^* \}$$