

Inductance Overview

Series Resistive

$$R_T = R_1 + R_2 + R_3$$

$$I_T = I_1 = I_2 = I_3$$

$$E_T = E_1 + E_2 + E_3$$

$$P_T = P_1 + P_2 + P_3$$

Series Inductive

$$X_{LT} = X_{L1} + X_{L2} + X_{L3}$$

$$I_{LT} = I_{L1} = I_{L2} = I_{L3}$$

$$E_{LT} = E_{L1} + E_{L2} + E_{L3}$$

$$\text{VAR}_{LT} = \text{VAR}_{L1} + \text{VAR}_{L2} + \text{VAR}_{L3}$$

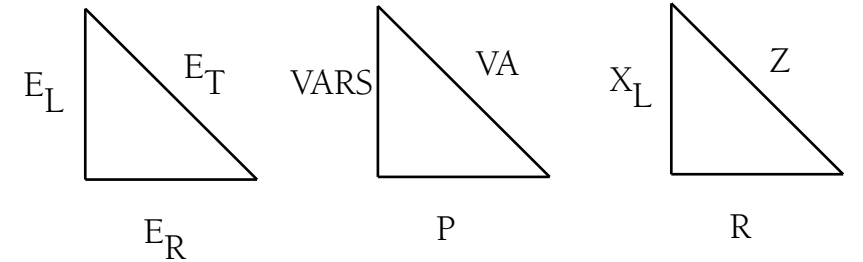
Series Resistive Inductive

$$Z = \sqrt{R^2 + X_L^2}$$

$$I_T = I_R = I_L$$

$$E_T = \sqrt{E_R^2 + E_L^2}$$

$$\text{VA} = \sqrt{P^2 + \text{VAR}_L^2}$$



Parallel Resistive

$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}}$$

$$I_T = I_1 + I_2 + I_3$$

$$E_T = E_1 = E_2 = E_3$$

$$P_T = P_1 + P_2 + P_3$$

Parallel Inductive

$$X_{LT} = \frac{1}{\frac{1}{X_{L1}} + \frac{1}{X_{L2}} + \frac{1}{X_{L3}}}$$

$$I_{LT} = I_{L1} + I_{L2} + I_{L3}$$

$$E_{LT} = E_{L1} = E_{L2} = E_{L3}$$

$$\text{VAR}_{LT} = \text{VAR}_{L1} + \text{VAR}_{L2} + \text{VAR}_{L3}$$

Parallel Resistive Inductive

$$Z = \frac{1}{\sqrt{\frac{1}{R^2} + \frac{1}{X_L^2}}}$$

$$I_T = \sqrt{I_R^2 + I_L^2}$$

$$E_T = E_R = E_L$$

$$\text{VA} = \sqrt{P^2 + \text{VAR}_L^2}$$

