

Approved Formula Sheet

Single Phase Equations:

$$kVA = \frac{E \times I}{1000} \quad \text{OR}$$

$$kVA = \frac{V \times I}{1000}$$

$$kW = \frac{E \times I \times \cos \phi}{1000} \quad \text{OR}$$

$$kW = kVA \times \cos \phi$$

$$I = \frac{kVA \times 1000}{E} \quad \text{OR}$$

$$I = \frac{kVA \times 1000}{V}$$

Three Phase Equations:

$$kVA = \frac{1.732 \times E \times I}{1000} \quad \text{OR}$$

$$kVA = \frac{V \times I \times \sqrt{3}}{1000}$$

$$kW = \frac{1.732 \times E \times I \times \cos \phi}{1000} \quad \text{OR}$$

$$kW = kVA \times \cos \phi$$

$$I = \frac{kVA \times 1000}{1.732 \times E} \quad \text{OR}$$

$$I = \frac{kVA \times 1000}{V \times \sqrt{3}}$$

Additional formulas for Load Banking:

P = True Power or REAL Power

$$P = I^2 R \quad \text{OR}$$

$$P = \frac{E^2}{R} \quad (\text{measured in watts})$$

$$\text{Power Factor (PF)} = \frac{\text{True Power (W)}}{\text{Apparent Power (VA)}}$$

$$PF = \frac{P}{kVA}$$

$$RPM = \frac{f \times 60}{P}$$

$$\text{Freq} = \frac{RPM}{120}$$

Flywheel Frequency:

$$\text{Freq (Hertz)} = \frac{2\pi \times \text{Flywheel Diameter} \times \text{Revolutions per Minute}}{60}$$