

## ENGINEERING DATA - DEFINITIONS AND BASIC RELATIONSHIPS

Variable (Symbol)	Base Unit (Symbol)	Common Unit (Symbol)	Notes	Equations
Capacitance (C)	Farad (F)	Micro farad ( $\mu$ F)	1 micro farad ( $\mu$ F) = $10^{-6}$ F	$C \text{ in } \mu\text{F} = \frac{\text{kVAr} \times 10^3}{(2\pi f) \times (\text{kV})^2}$
Active Power (P)	Watts (W)	Kilowatt (kW)	Also real, working or load power	
Power Loss ( $P_L$ )	Watts (W)	Kilowatt (kW)	Also dissipated power	$P_L \text{ in Watts} = I^2R$
Reactive Power (Q)	Volt-ampere reactive (VAr)	Kilo volt-amperes reactive (kVAr)	Also imaginary, inductive or magnetizing power	$\text{kVAr} = \sqrt{\text{kVA}^2 - \text{kW}^2}$
Total Power (S)	Volt-ampere (VA)	Kilo volt-amperes (kVA)	Also apparent power	$\text{kVA} = \frac{\sqrt{3} \times V \times A}{10^3}$ (3-phase)
Voltage (V or E)	Volt (V)		Also potential difference or electro motive force	
Current (I)	Ampere (A)			
Capacitor Current ( $I_C$ )	Ampere (A)			$I_C = \frac{\text{kVAr} \times 10^3}{\sqrt{3} \times V}$ (3-phase)
Resistance (R)	Ohms ( $\Omega$ )			
Frequency (f)	Cycles per second (cps) or hertz (Hz)			
Power Factor (PF)	Dimensionless, expressed as decimal or %			$\text{PF} = \frac{\text{kW}}{\text{kVA}} = \cos \Phi$

<b>Applied Voltage</b>	208 V	240 V	480 V	600 V
<b>Amps/kVAr</b>	2.78	2.41	1.20	0.96

36825 Metro Court Sterling Heights, MI 48312

Toll Free: (800) 245-0583 | Phone: (586) 979-9955 | Fax: (586) 979-9484

[www.myronzucker.com](http://www.myronzucker.com) | [info@myronzucker.com](mailto:info@myronzucker.com)

**POWER QUALITY**