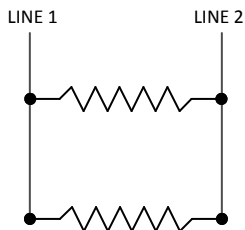


### HEATER WIRING CONFIGURATIONS

#### Symbols:

$V$  → Line Voltage       $V_n$  → Voltage across numbered resistive element  
 $I$  → Line Current       $I_n$  → Current through numbered resistive element  
 $W$  → Total Watts       $W_n$  → Power in numbered resistive element  
 $R$  → Total Resistance       $R_n$  → Value of numbered resistive element

#### PARALLEL

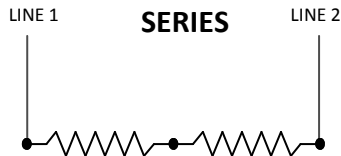


$$V = V_n$$

$$W = \sum W_n = \sum VI_n$$

$$I = \sum I_n = \sum \frac{V}{R_n}$$

$$\frac{1}{R} = \sum \frac{1}{R_n}$$



#### SERIES

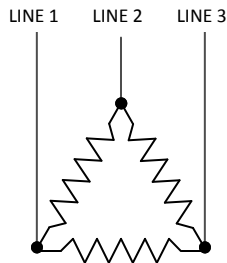
$$V = \sum V_n$$

$$W = \sum W_n = \sum VI_n$$

$$I = I_n$$

$$R = \sum R_n$$

#### DELTA



\*\*\* Assume Balanced Load (all resistors are equal) \*\*\*

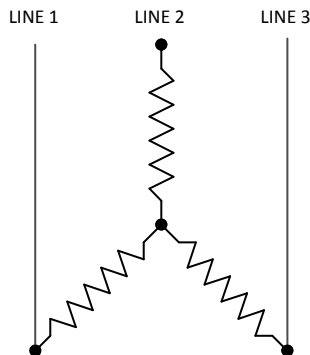
$$V_n = V$$

$$W = 1.73VI = \frac{3V^2}{R_n} = 3VI_n$$

$$I_n = \frac{I}{1.73}$$

$$R_n = \frac{1.73V}{I} = \frac{3V^2}{W} = \frac{V}{I_n}$$

#### WYE / STAR



\*\*\* Assume Balanced Load (all resistors are equal) \*\*\*

$$V_n = \frac{V}{1.73}$$

$$W = 1.73VI = \frac{V^2}{R_n} = \frac{3V_n^2}{R_n}$$

$$I_n = I$$

$$R_n = \frac{V^2}{W} = \frac{3V_n^2}{W}$$